Sexual Health Knowledge and Attitudes of a Sample of Saskatchewan Post-Secondary Freshmen

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Abstract

The purpose of this study was to describe the sexual health knowledge and attitudes of a sample of Saskatchewan post secondary freshmen aged 17-19. Three primary questions guided this research: What do Saskatchewan freshmen know about the general sexual health topics of physiology, contraception, and sexually transmitted infections? What are common attitudes about sexual activity, risk behaviors, and relationships? What were the main sources of sexual health information for these freshmen, and do they express a need for more education and resources? The study design was a qualitative web-based survey. Participants were volunteer freshmen aged 17-19 from the University of Saskatchewan and Saskatoon Institute of Applied Science and Technology, and 515 responded. Sixty-two percent were sexually active. Condoms were seen as helpful (98%) but only 57% saw them as effective for preventing pregnancy. Only 47% saw condoms as effective for preventing HIV/AIDS. Knowledge of reproductive physiology and STI symptoms and consequences were low with an average knowledge score of 26%, while HIV and AIDS knowledge scores averaged 80%. Knowledge of long acting contraceptives was much lower than birth control pills. Human papilloma virus was poorly understood, and many wanted more information about HPV vaccination. Attitudes were mixed about safe sexual activities, with respondents identifying condoms (94%), withdrawal (18%) and anal sex (15%) as safer sex. Condoms were used at last intercourse by 57%. A variety of attitudes were expressed about condom use, sex in relationship, and social pressures. Topics concerning to respondents were sexual violence, HIV/AIDs, STIs, unintended pregnancy, and the influence of alcohol/ drugs on sexual activity. Very few respondents had heard of or accessed sexual health websites designed and promoted to teens. An interest was expressed for more information from doctors and public health nurses, more guest speakers for SBSHE, and easier access to sexual health clinics.

The information gathered in this study highlighted many areas for further detailed inquiry, and topics that can be better addressed in physician's offices and sexual health curriculum. Additionally, the results could guide sexual health educators, policy makers and direct physicians towards collaboration and advocacy projects, and ultimately contribute to long term improvement in sexual health of Saskatchewan teens.

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Chapter 1

1. Introduction

1.1. Study Rationale

As an obstetrician gynecologist in training, I frequently see young women who are pregnant, seeking contraception, or have an abnormal Pap test. When discussing their issues and medical history, I have been surprised at the paucity of their knowledge of basic anatomy, physiology, and sexuality, and the numerous misconceptions and myths (and fears) I uncovered. The armamentarium of adjectives and slangs for sexual anatomy and function is extensive, but I often need to translate "contraception." After explaining the basics of the reproductive cycle, or the nature of a sexually transmitted infection, I have asked if they recalled information from school-based sexual health education classes, and the almost universal response has been "no."

I wanted to assess if my observation of the gap in sexual health knowledge was isolated to my few patients, or if it was common in other teens as well, so I decided to discuss the topic of teen sexual health whenever the opportunity arose. Whether talking with a parent, teacher, nurse, physician, or anyone who interacted with teens, the attitude expressed was the same: teens do not have enough knowledge about general sexual health. They acknowledged that School-based sexual health education (SBSHE) was the main source of structured information for teens. However many believed that the time and resources allocated were insufficient to adequately equip teens to make well-informed sexual health choices. Parents felt the few hours of SBSHE provided in a school year paled in comparison to the daily onslaught of peer pressure and media influences. Teachers felt frustrated that they did not have enough time or training to feel prepared to give the few lectures a year. Nurses who provided public health services or worked at teen sexual health clinics were concerned that teens are simply not getting enough science-based, professionally administered sexual health education, but because they are at an age that is sexually inquisitive, their gaps in knowledge are being filled in by popular culture, misinformation, and myths. These concerns combined with my

observations and, increased my fear that teens in Saskatchewan had high risks of long term consequences such as sexually transmitted infections (STIs), cervical disease (pre-cancerous lesions), unintended pregnancy, and infertility.

1.2. Purpose

The purpose of this study was to describe the sexual health knowledge and attitudes of a sample of Saskatchewan post-secondary freshmen aged 17-19. My study was guided by these primary research questions:

1) What do Saskatchewan freshmen know about the general sexual health topics of physiology, contraception, and sexually transmitted infections?

2) What are common attitudes about sexual activity, risk behaviors, and relationships?

3) What were the main sources of sexual health information for these freshmen, and do they express a need for more education and resources?

To answer these questions, a descriptive web-based survey of sexual health knowledge, attitudes, and behaviours was administered to volunteer freshmen aged 17-19 at the University of Saskatchewan (U of S) and Saskatchewan Institute of Applied Science and Technology (SIAST). Even though my medical specialty is focused on women's health, both genders were included in the research because their culture is shared and their influence reciprocal.

The goal was to survey a sample of Saskatchewan teens who have completed their formative sexual health education, and sketch a picture of their working sexual health knowledge, their attitudes about sexual relationships and sexuality, and their recollections of (and interest in) sexual health education. Based on my observations, I anticipated that teenagers would have low sexual health knowledge scores (<70% correct), and many would express attitudes about sexual activity and behaviors that are associated with higher risk of sexually transmitted infections and unintended pregnancy. Additionally, I anticipated that respondents would express a need for more

sexual health education information and resources, and more expertise and training for their sexual health educators.

The intention of the study was to contribute to the literature by answering the primary research questions using a sample of post-secondary Saskatchewan freshmen, which has not been previously studied. The results could lay the foundation for the development of a locally relevant needs assessment survey which could inspire further scientific inquiries. The results from this study could also guide sexual health educators and policy makers and direct physicians towards collaboration and advocacy projects, and ultimately contribute to long term improvement in sexual health of Saskatchewan teens.

1.3. Background of the Problem

The overarching goal of grade school system is to prepare children to be well-rounded, functional, healthy and productive adults in society. The goals of the Saskatchewan education system are guided by a continuous improvement framework that provides common planning processes, system priorities, operational supports, and outcome measures. The primary goal described in this framework is to have an education system relevant to today's youth that prepares them for transition into post-secondary education, and is responsive to the changing needs of students, families, and communities (SK Ministry of Education, 2008). I believe that a curriculum that includes sexual health is relevant to today's youth, is a crucial life skills necessary for successful transition into adulthood, and should evolve to address new challenges and needs.

Sexual health not only comprises reproduction and sexually transmitted disease, it also includes "a state of emotional, physical, mental, and social well-being...(and) requires a positive and respectful approach to sexuality and sexual relationships" (WHO 2002, pp.5). Effective sexual health education (SHE) is not merely the biology and physiology of sex and gender. It is knowledge acquisition, understanding motivations, and acquiring healthy sexuality skills (McKay, 2004). The endpoints of effective SHE include postponing age of first intercourse (coitarche), reducing number of sexual

partners, appropriate use of contraception and barriers, and lowering rates of unplanned pregnancy, HIV, and STIs (Rosen, 2004).

Sexual health should be reflected in the education and attitudes of community-based organizations, parents, youth facilities, and schools (Tountas & Dimitraki, 2006). School based sexual health education (SBSHE) is a logical method of addressing sexual health. The majority of children attend school, and the overall educational environment is an opportunity for health promotion and acquisition of knowledge, understanding, and lifelong healthy sexuality (PHA, 2008). The most effective programs are comprehensive and address many aspects of healthy sexuality: anatomy, physiology, contraception, safer sex, relationships, abstinence, decision-making, and assertiveness (Kirby, 2007; SOGC, 2007). School-based sexual health education is the most standardized method of providing the knowledge, addressing motivations, and developing skills necessary for long term sexual health (Fisher & Fisher, 1998; SOGC, 2007).

Unlike other academic subjects that have national standards and evaluation processes, SHE is designed by each province, and its administration is ultimately subject to the preferences of each school and teacher (CFSH, 2007; McCall et al., 1999; SOGC, 2007). Because of this subjectivity, it is possible that SHE curricula may not adequately prepare adolescents for the realities of sexual decision making, resulting in long term consequences (CCL, 2009). Many organizations advocate for a multi-dimensional approach to SBSHE that supports educators, advocates for resources, collaborates with communities, and provides evidence-based comprehensive education (CFSH, 2007; SOGC, 2004; UNESCO, 1996; WASH, 2008; WHO, 1998; 2009). Saskatchewan has designed a SHE curriculum that is incorporated into Health & Wellness class time (Ministry of Health, 2010). However, the amount of time that is allocated to teaching sexual health and the measurement for the achievement of objectives is not standardized. It also relies heavily on public health nurses (CBC, 2006; E. Schoenfeld, personal communication, May 4, 2010; J. Opondo, personal communication, Sept 10, 2010).

Addressing sexual health in schools remains pertinent as 60-66% of students in grade 12 experienced sexual intercourse at least once (SIECCAN, 2009). Sexually transmitted infections (STIs) are increasing, and young women age 19 have the highest rate of chlamydia across all age groups and both genders (CDC, 2009). Saskatchewan is amongst the provinces with the highest rates of chlamydia, with a 55% increase in incidence from 1997-2004. It also has the highest provincial rate of teen pregnancy and abortion (CDC, 2009 & 2010). Safer sex (methods to decrease the transmission of STIs) and contraception (methods to prevent pregnancy) should be fundamental concepts in any method of SHE (McKay, 2004; PHA, 2010). Accurate knowledge and safe sexual behaviours are challenged conflicted by teen popular culture which is saturated with a norm of sexual activity and images. Young women are particularly vulnerable to the (negative) influences of popular culture (CFSH, 2007; Peterson et.al. 2007; Collins et al., 2004).

More sexual health education and resources are needed and requested by both teens and parents (DiCenzo et al., 2001; Evans et al., 2002; Fast Consulting, 2008). Teens have expressed a specific interest in easier access to health services and more involvement of health professionals (Byers et al., 2003; Frappier et al., 2008). Saskatchewan has recognized this need, and the Ministry of Health recommends a standardized provincial curriculum informed by youth opinion, a provincial sexual health survey, and collaboration with supportive organizations (SK Ministry of Health, 2010). National guidelines exist that could aid in this process (PHA, 2008; SOGC, 2007; Vatanprast, 2010). Health professionals, particularly physicians, have the expertise and social influence to be powerful advocates for sexual health of teens. They have the potential for a greater leadership role in the promotion and delivery of SHE (Elias et al., 1994; Frank, 2004; McCall & McKay, 2003; SOGC, 2007).

This research can potentially better define areas of need in the current SBSHE. It can provide more concrete direction for physicians and training physicians to increase their positive influence on sexual health education. This may take the form of better recognition of how to approach teen patients in the office, being available to provide sexual health education in either classroom or public forums, or becoming a more vocal

patient advocate for political policy and funding. These principles of advocacy and collaboration are increasingly encouraged as part of physician training across Canada (RCPSC, 2005).

1.4. Methodology and Method

Merten's (1998) definition of survey research was used to guide this study. "Surveys can be thought of as methods used for descriptive research or data collection . . . The simple descriptive approach is a one-shot survey for the purpose of describing the characteristics of a sample at one point in time" (p. 105, 108).

The research instrument was a descriptive web-based survey of sexual health knowledge, attitudes, and behaviours. The population sampled was 17 to 19 year-old freshmen at two postsecondary institutions in Saskatoon. The sites proposed were not sufficient to represent the entire population of 17-19 year olds in Saskatchewan. However they provided an accessible and convenient sample of individuals who had completed the sexual health education curriculum provided in secondary school.

1.5. Assumptions

The epistemological perspective of this research was post-positivist, which assumes an objective reality exists, but this reality can only be known imperfectly (Gall, Gall & Borg, 2007). The survey was designed to objectively quantify the sexual health knowledge and attitudes of the study population based on subjectively important questions and issues. Many different research designs can describe sexual health of teens, but the questions chosen represented a broad sweep of many topics, appropriate for an assessment of current status and future needs. The conclusions were imperfect representations of status and needs because they were based on the interpretations of the participants' responses, as well as their perceptions of their lived experiences.

My beliefs about the role of medical professionals in the community contributed not only to the purpose of the study but also to my bias. With extremely busy medical practices and a fee-for-service reimbursement system, physicians have less time to spend not only on counseling and prevention, but also on community involvement.

Because physicians and nurses are fundamentally trained in science and biology, they have the skills and expertise to contribute to sexual health education and advocacy. This is an unmet potential and I feel strongly that health regions and medical associations need to support and encourage more resources and involvement.

My personal experiences with my patients also influenced my paradigm of the importance of preventive health knowledge production, and the key role of the medical community in the process. I believed that sexual health education is a critical part of preparing teens for adulthood, and that SBSHE should form the bedrock of reliable, comprehensive information. I also believed in education that does not dictate what choices teens should make. Instead it should provide them with the information and tools they need to make their own choices that are consistent with their own beliefs and values. There are many ways that feedback of the current system can contribute to improvement. In addition, there are many examples of successful initiatives in other provinces that could be implemented in Saskatchewan. However, I believed it was crucially important to hear directly from Saskatchewan teens. It was important to learn about their experiences in the current SBSHE system, the extent of their knowledge, and what sexual health attitudes they hold as they transition into young adulthood. Their voice is a powerful statement that could help to reform and strengthen the current system.

The method chosen to gather high school graduate's sexual health opinions was a survey for multiple reasons. First, a survey allowed many teens to reflect and respond to multiple issues in a short and convenient amount of time. Second, the anonymity and convenience of a survey allowed the respondents to feel comfortable and honest, as the face-to-face interaction of interviews may have led to more embarrassment or self-consciousness, and thus less candor, when discussing sexuality. Third, because this was a voluntary survey, those who chose to participate were willing to spend the time to complete the survey and express their opinions, providing constructive feedback for assessing and changing the current system. Volunteer bias was present; especially due to the personal nature of the survey, however, sample size and demographic variety was hoped to mitigate this confounder.

1.6. Theoretical Background

The research relied on constructivism as a learning theory. Founded by Piaget, the theory proposed that humans learn by assimilating new knowledge with their experiences or modifying established understanding (Bransford, Brown, & Cocking, 2000). Surveying what teens know and how this connects with what they believe and do, is consistent with constructivist learning theory. The existing knowledge and experiences of youth could be used to revise SBSHE programs: to include more topics that teens find engaging and pertinent.

In addition to constructivist learning theory, the Information- Motivation- Behavioral Skills (IMB) model cultivated the rationale for the research, and influenced the study design (Fisher & Fisher, 1998). Fisher and Fisher described the IMB model as a way to understand the psychological determinants of sexual health. The basic premise of the model is that information and motivation lead to the development of sexual health behavioral skills, which are then used to initiate and maintain long-term reproductive health. Programs need to provide teens with accurate information, an understanding of underlying motivations, and inspire new motivations to apply this knowledge. This culminates in the development of behavioral skills, which are the outward signs of deeper attitude changes, and are more sustainable over time. Motivated individuals may not have proper information; people with information may not be motivated. Health promotion will be achieved over the long term only by addressing both. (Fisher & Fisher, 1998).

The IMB model is an excellent theory to apply to school-based sexual education programs. According to this model, two hours of didactic sexual education in a school year are inadequate to incite a change in sexual behavior. It is not enough to provide factual knowledge without understanding the underlying motivations that will affect teens' interest in and interpretation of the topic. Once the knowledge and motivations are aligned, the skills required for the behavior to take place must also be addressed (Fisher & Fisher, 1998). For example, information on STIs should include not only symptoms but also describe long term consequences of infections which may begin to influence motivations. It should also be accompanied by skills needed to prevent an

infection, such as where to attain barrier contraception, and where to go for testing and treatment. Such education demands well-designed curriculum, well trained educators, contribution from physicians and community leaders, political willpower, and organized advocacy for resources.

This thesis research applied the IMB model to Saskatchewan teens applying to post-secondary education. The results described the information, motivations, and behaviors of 17-19 year-olds who recently completed their high school SBSHE curriculum. The IMB model guided the decision to group and analyze the survey data into knowledge, attitude, and behavior categories. The data collected may be used to inform curricular improvement by directing educators and resources toward areas of sexual health education with the greatest need.

Chapter 2:

2. Review of the Literature

After defining sexual health education and the surrounding issues, the context of teen sexual health will be described. Literatures that support sexual health education will be reviewed, and a rationale for why physicians need to become more involved will be provided.

2.1 The Concept: Sexual Health Education

Understanding sexual health education in Saskatchewan requires a common understanding of what sexual health is, how it is incorporated into school curriculum, and how this translates into the current system in Saskatchewan.

2.1.1 Sexual Health

Sexual health is one of the components of "reproductive health," which implies that people:

> Have the capability to reproduce and the freedom to decide if, when, and how often to do so. Implicit in this last condition are the right of men and women to be informed and to have access to safe, effective, affordable and acceptable methods of family planning of their choice … It also includes sexual health [emphasis added], the purpose of which is the enhancement of life and personal relations, and not merely counseling and care related to reproduction and sexually transmitted diseases. (United Nations, 1994, p. 40)

Therefore, "sexual health" is a multidimensional and dynamic concept, changing with individual development and cultural evolution. The working definition of sexual health for this study is from the World Health Organization conference in Geneva held in 2006:

> Sexual health is a state of physical, emotional, mental and social well-being in relation to sexuality (emphasis added); it is not merely the

> absence of disease, dysfunction or infirmity. Sexual health requires a positive and respectful approach to sexuality and sexual relationships, as well as the possibility of having pleasurable and safe sexual experiences, free of coercion, discrimination and violence. For sexual health to be attained and maintained, the sexual rights of all persons must be respected, protected and fulfilled. (WHO, 2002. p. 5)

While "sex" refers to the biology and physiology of gender, and what differentiates males from females (WHO, 2002), "sexuality" is defined by the WHO as:

> …A central aspect of being human throughout life and encompasses sex, gender identities and roles, sexual orientation, eroticism, pleasure, intimacy and reproduction. Sexuality is experienced and expressed in thoughts, fantasies, desires, beliefs, attitudes, values, behaviors, practices, roles and relationships. While sexuality can include all of these dimensions, not all of them are always experienced or expressed. Sexuality is influenced by the interaction of biological, psychological, social, economic, political, cultural, legal, historical, religious and spiritual factors. (WHO, 2006, p.8)

When these multiple facets are acknowledged, the centrality of sexual health and sexuality in what makes humans unique can be better understood. Each person need to understand sexuality in his or her own context, requiring not only information and knowledge, but also discussion, self-assessment, and an appreciation that sexuality will change over time (WHO, 2004).

2.1.2 Sexual Health Education

The aim of sexual health education (SHE) is to help adolescents develop an understanding of their sexuality from biological, psychological, socio-cultural and reproductive perspectives. It also aims to equip them with skills that will help them make responsible decisions and actions with respect to sexual and reproductive health behavior (UNESCO & UNFPA, 1998, p.13). More specifically, SHE is not merely

information about the biology and physiology of sex, but is a process of experiences that combine to help the learner achieve the following goals:

a) Acquire knowledge that is pertinent to specific health issues;
b) Develop the motivation and personal insight that are necessary to act on this knowledge;
c) Acquire the skills they may need to maintain and enhance sexual health and avoid sexual problems;
d) Help create an environment that is conducive to sexual health (McCall &McKay, 2004. p.1).

SHE education for adolescents aims to achieve a range of behavioral and health outcomes: postponing age at first intercourse and promoting abstinence, reducing number of sexual partners, increased use of contraceptives and condoms, lowering rates of early unwanted pregnancy and resulting abortions, and lowering rates of infection with HIV and other STIs (Rosen, 2004). This education can be provided in multiple settings, such as community-based organizations, schools, and youth facilities (Planned Parenthood, 2012).

The information provided at school is not a substitute for contributions from parents, religious leaders, and other community based organizations (Tountas & Dimitrakaki, 2006). The best SHE programs are not "value free," but instead provide all the information needed for the teen to make their own choice for what is best. They include information and skills required to choose to not engage in sexual activity (Boyce et al., 2003). This education can then be placed into the context of each person's values, beliefs, and social reality.

The incorporation of SHE into schools by class time and instruction, henceforth referred to as School Based Sexual Health Education (SBSHE). is a logical method of addressing sexual health. This is so because the vast majority of children are accessible through schools, and schools usually serve as an entry point for health promotion, provide a location for health interventions, and enable students to learn critical health and life skills (WHO, 1998). Schools are "in a unique position to provide children, adolescents and young adults with the knowledge, understanding, skills and attitudes

they will need to make and act upon decisions that promote sexual health throughout their lives" (PHA, 2008).

Curricular designs range from abstinence-only to comprehensive. Comprehensive sexual health education includes anatomy, physiology, contraception, safe sex, relationships, and abstinence. Teaching sexual health education within such a program adds skills such as decision-making and assertiveness (SOGC, 2007). Abstinence-based programs expect sexual intercourse to be exclusive to marriage. With this is the expectation of lifelong monogamy, therefore contraception for prevention of either STIs or pregnancy is not emphasized (Santelli, 2005; SIECCAN, 2009). In Saskatchewan, abstinence-based curricula are still common in private schools and the Catholic school system (E. Schoenfeld, personal communication, Feb 4, 2010).

Proponents of abstinence curriculum believed that discussing sexual topics, and providing information about condoms and contraception, will condone and encourage teens to engage in sexual activities (Santelli, 2005). The myth that discussing and exposing teens to sexual education will increase their sexual activity has been thoroughly disproven; a meta-analysis of many comprehensive teen sexual health interventions did not show an increase in the number of sexual partners or behaviors (Smoak, Scott-Sheldon, Johnson, & Carey, 2006). Comprehensive programs have been shown to delay first sexual intercourse, reduce frequency of sex and number of partners, increase condom and contraceptive use, and reduce sexual risk by changing behavior, while abstinence-based programs have been shown to be effective in any of these outcomes (Kirby, 2007; Kirby, Laris, & Rolleri, 2007).

The literature reflects many commentaries and studies on U.S. school-based sexual education, which has been predominantly abstinence focused for many years (Planned Parenthood Federation of America, 2012). In 1981, the United States passed legislation that allocated federal funding only to programs that were abstinence-only. However, recently this has changed, and the U.S. now funds evidence-based programs that have been proven to reduce teen pregnancy and risk factors for poor sexual health (Boonstra, 2010). In contrast, most health regions in Canada have designed a sexual health curriculum, but the actual delivery of SBSHE is at the discretion of the school board

and professionals (physicians, nurses, and teachers) who provide it (McCall et al., 1999). For example, there is great variation among provinces for when HIV/AIDS education begins, what is covered and in what subject, how many hours are spent, and who teaches the curricula (The Canadian AIDS Society, 2005).

Every Canadian province, region, and school has both the freedom and responsibility to organize their own curriculum (McCall et al., 1999). This is a similar pattern to many areas in the world, and gives sexual health policy makers and providers the responsibility of determining how policies and guidelines are implemented, and what information will be given to whom (Tavrow, 2010). SHE for teens is preparation for the sexual responsibilities and choices in adulthood, but SHE curriculum has not benefitted from the same continuity as other academic subjects (McCall et al., 1999). As a result it may fail to adequately prepare adolescents for the realities of sexual decision making they will face (CCL, 2009). Communication and collaboration between provinces has resulted in minimum standards and desired learning outcomes in science, reading, and mathematics. This same process can and should be used to develop curricula, define outcomes, and more rigorously monitor implementation of these standards and achievement of objectives of SBSHE (SOGC, 2004).

Multiple international organizations emphatically advocate for SBSHE. The World Association for Sexual Health (2008) emphasizes that SBSHE programs that withhold information (particularly about contraception, HIV, and STIs) are unethical because they do not facilitate making voluntary, informed choices. The United Nations expresses similar sentiments, stating that “the approach of censuring certain topics as unacceptable in the context of adolescent reproductive and sexual health education has left a number of gaps where adolescents have no outlet to explore the growing complexities of their reproductive, sexual, social, and emotional development” (UNESCO & UNFPA, 1996, p. 14). The World Health Organization recommends that SHE be provided within the context of schools that promote health (WHO, 2009). Achieving this requires a multi-faceted approach. Policies and guidelines need to direct resources towards SBSHE, teachers who are health promoters must be valued and provided with the necessary support, communities must work with schools to deliver

SBSHE, and school programs must be designed, monitored, and evaluated to ensure achievement of outcomes (WHO, 1998).

2.1.3 Saskatchewan Sexual Health Education

Public schools in Saskatchewan follow the Ministry of Education's sexuality curriculum renewed in 2010. Outcomes and concepts deemed appropriate for the developmental stage of children are outlined: Grade 1 starts with concepts of self, gender, safe adults, strangers; Grade 5 includes discussing puberty and using proper anatomy terms; Grade 7 includes discussion about HIV and Hepatitis B and C; Grade 8 includes domestic violence, sexual health societal norms, resources, and influences (Ministry of Education, 2010). The bulk of the sexuality curriculum is offered in Grade 9, and the outcomes include addictions, romantic relationships, personal attitudes, abstinence and STI prevention. In Saskatchewan, the Health Education Goals for grade 9 are:

1. Develop the understanding, skills, and confidences necessary to take action to improve health.
2. Make informed decisions based on health-related knowledge.
3. Apply decisions that will improve personal health and/or the health of others. (Ministry of Education, 2010, Health Education 9 Outcomes, para.3).

Apply these goals to sexual health education requires an understanding of core knowledge, opportunities to develop a higher level of critical thinking and understand motivations, and acquired behavioural skills (Fisher & Fisher, 1998). How well Saskatchewan teens are achieving these goals is unknown, as a formal examination or assessment does not exist. A cross-Canada survey revealed that 41% of grade 9 females identified SBSHE as the main source of education on human sexuality, puberty and birth control. However, 50% of the same grade 9 females also recalled receiving less than 4 hours of instructional time on these topics in the last 2 years (30% reported less than 2 hours) (Boyce, Doherty, Fortin, & MacKinnon, 2003). If Saskatchewan teens are similar to this national trend, achievement of the provincial goals is unlikely.

Sexual health education continues into high school in the Wellness (grade 10) and Life Transitions (grade 11 and 12) curricula, both of which are available online at www.curriculum.gov.sk.ca. Upon reviewing Wellness curriculum's 10 outcomes, specific sexual health goals are not mentioned, the closest outcome is "assessing one's self-awareness... and self-management... for the purpose of enhancing well-being of self and others." (Ministry of Education, 2010, Wellness 10 Outcomes, para.5). The Curriculum Guide for Physical Education 20/30 does not have time specifically allocated for sexual health education (Saskatchewan Learning, 1994) but it is optional for educators to teach it. It is possible for a student to complete grade 12 in Saskatchewan without the necessary information on sexual health (CBC, 2006).

In Saskatchewan, PHN's are responsible for many other community health initiatives, and are no longer able to be the primary sexual health educators in Saskatchewan. Instead this responsibility is assigned to teachers (E. Schoenfeld, personal communication, Feb 4, 2010). Significant time is required to filter, translate, and incorporate the appropriate sexual health information into a lesson plan. To support the teachers, Saskatoon PHN's have created summarized resource binders that include the provincial curriculum, detailed lesson plans, group activities, and resources for both the teachers and students (E. Schoenfeld, personal communication, Feb 4, 2010). These binders include lists of reputable websites for teachers, parents, and teens. Unfortunately there are insufficient resources to mass-produce these binders for every school and keep them updated, so they are optional and available to school boards upon request. PHN's continue to be actively involved in SHE whenever possible: providing in-services; advocating for appropriate training for teachers; and partnering with innovative approaches such as teen-led theatre (E. Schoenfeld, personal communication, Feb 4, 2010).

Other provincial sources of sexual health promotion include provincial organization websites with resources and information. The Saskatoon Health Region website (www.saskatoonhealthregion.ca) advertises the Sexual Health Clinic and its services, but does not provide information or links to informative websites. However, the Saskatchewan Prevention Institute's website (www.skprevention.ca) provides

resources, documents, and CD's on the topics of sexuality, STIs, preconception care, and pregnancy. Their website's sexual and reproductive health section, endorses comprehensive SHE, and provides a direct link to the Grade nine unit on abstinence, STIs, pregnancy, and contraception. Saskatoon teens have access to clinics for multiple resources such as information, screening, and treatment. Saskatchewan Prevention Institute website also promotes Teen Wellness Centres available across the province in 5 schools and 6 community centers.

In addition to the Saskatoon Public Health Sexual Health Clinic, the Sexual Health Centre provides information, affordable contraception, free condoms, pregnancy counseling, and referrals to physicians (Sexual Health Centre, 2008). Statistics on how these clinics are advertised and utilized has not been documented.

2.2. The Challenge: Sexual Health of Teens

Many factors contribute to sexual health of teens. The following is a summary of recent statistics on sexual health and knowledge, and the foundational concepts of safe sex and contraception. As a particularly vulnerable subset of the population, young women's sexual health and attitudes will be commented on. Finally, the influence of popular culture on youth's sexual health will be discussed.

2.2.1 Sexual Statistics

Approximately 8% of teens have their first sexual intercourse under the age of 15 (Rotermann, 2005). Around 28% of teens aged 15-17 are sexually active (SIECCAN, 2009); this increases to 43% when 18 and 19 year olds are included (Rotermann, 2005). By Grade 12, 60% of teens are sexually active (CDC, 2002). Teens tend to use condoms 55-75% of the time, however teens tend to discontinue condom use as the get older (CDC, 2001; SIECCAN, 2009). Sexual activity varies between genders, with 60% of female and 55% of male teenagers being sexually active. Recent Canadian statistics have shown that despite young women being more sexually active than boys, more boys (66%) than girls (32%) think that casual sex (sex with no emotional attachment) is acceptable. In addition, teens have identified partying and rebellious activities as a way

to gain popularity (SEICCAN, 2009). These attitudes suggest a lack of either knowledge or motivation to reduce risky behaviors (CCL, 2009).

The incidence of STIs has been steadily increasing in Canada, and teens are the highest risk group. Young adults are the highest risk group for HIV acquisition, as 45% of new cases are youth aged 15-24 (UNAIDS, 2009). Chlamydia trachomatis is the most reported STI; from 1997 to 2004, a 55% increase in infections was reported, with 15-19 year old women the most affected (CCL, 2009). In 2010, women age 19 had the highest rates of chlamydia (492/10,000) and gonorrhea (570/10,000), an incidence four times higher than other age groups (CDC, 2010). Most of these infections are silent, as only 10% of males and 25% of females diagnosed with an infection display symptoms (CDC, 2013). The vast majority of other STI infections are also asymptomatic (80% of HPV infections, 60% of herpes). Because teens are the highest risk group for infection, The Centre for Disease Control in Canada recommends yearly screening of all sexually active people under the age of 25 (PHAC, 2008). Unfortunately, surveys have shown only 25- 50% of sexually active teens have been screened at least once for STI's (Boyce et al., 2003; Kaiser Family Foundation, 2003). Because only a fraction of the population is being screened, an accurate rate of the incidence of STI's is unknown.

Unscreened teens lead to undiagnosed infections. This escalate risk, as untreated chlamydia or gonorrhea progress to pelvic inflammatory disease (PID) in 5-30% of cases (Hook et.al., 1994; Stamm et.al., 1984). PID, an infection of the fallopian tubes and abdomen, is associated with a 12% risk of infertility (Gerberding, 2004). Chlamydia is also associated with ectopic pregnancy, infertility, and chronic pelvic pain (Haggerty et al., 2010). Unfortunately, most teens surveyed could not identify these serious consequences of STIs from a list, but instead identified the major risks as shame and fear of losing a partner. Furthermore, even though young women have acknowledged that chlamydia and PID are associated with future infertility, over half did not think there was anything they could do to reduce this risk (Kaiser Family Institute, 2001).

The literature finds similar knowledge gaps with other STIs. Although most Canadian teens have heard of HIV, only half had heard of Human Papillomavirus (HPV), and

only half of them knew of the potential health consequences of an infection (including cervical cancer) (Frappier et al., 2008). Not only is correct information lacking, but also misinformation is pervasive. For example, 23% of teens thought STIs could be contracted from toilet seats, but 17% did not believe oral sex could transmit infection (Frappier et al., 2008). Investing time and resources in SHE that starts with a strong foundation of STI knowledge is crucial to separate fact from fiction.

2.2.2 Safe Sex

Sexual health knowledge is fundamental for the development of motivations and behaviors. Therefore, sexual health education (whether at home, in a classroom, or in a clinic) must ensure an understanding of basic prevention and risk reduction concepts. The most common concept, "safe sex," (or "safer sex") includes consensual sex using barrier protection or non-penetrative methods to prevent the spread of disease transmitted by sexual contact (Miriam Webster; The Free Dictionary). Safe sex behaviors further reduce the risk of acquiring an STI and include abstinence, later age at first intercourse, and fewer overall partners. The corollary of "unsafe sex," occurs when a susceptible person has unprotected intercourse with a partner who has a sexually transmitted infection. The repercussion is also evident when a person engages in high risk sex behaviors such as sex without a condom and with multiple sexual partners, anal sex, anonymous sex, or with a sex trade worker (Slaymaker et al., 2004).

Regardless of when a teen intends to have their first sexual experiences, safe sex education should be a fundamental pillar of sexual health education (McKay, 2004). Primary (before the first occurrence) or secondary (after an occurrence) prevention of STIs and pregnancy requires more than basic science knowledge of how an STI is transmitted or how pregnancy occurs (Public Health Agency of Canada, 2010). Equally important is an understanding of risks involved with various sexual activities. Understanding options such as abstinence and barrier methods, and the individual right/ability to choose how they will prevent disease and pregnancy is paramount (Public Health Agency of Canada, 2010). Sex education programs that have been shown effective in promoting sexual health explore these crucial topics and provide resources that promote sexual health (Planned Parenthood, 2012).

Condoms are an essential principle of safer sex. STIs are transmitted in two ways: skin contact with infected urethral or vaginal secretions (HIV, gonorrhea, chlamydia, trichomonas); or skin to skin contact (genital herpes, syphilis, HPV) (CDC, 2008). The male condom, latex or polyurethane, is the single most efficient and available method for reducing the sexual transmission of HIV and other STIs (UNAIDS, 2009). Condoms provide an essentially impermeable barrier to HIV particles. Correct and consistent condom use is the most effective method for preventing HIV transmission; sex without a condom carries an HIV transmission risk of 1/500, while sex with a condom reduces this risk to 1/5000 (CDC, 1997; UNAIDS, 2009).

There are many activities that seem like "safe sex" but do not reduce risk of STI transmission. Serial monogamy (sequential faithful relationships) seems reassuring, but does not reduce the risk of STIs, This is so because multiple sexually monogamous but short term relationships still pose a risk due to the cumulative number of partners. Once an intimate relationship is more established, condoms are frequently stopped because the relationship is "exclusive" with no sex outside the relationship (Rotermann, 2008). A cross-Canada survey of youth revealed that 24% of females and 10% of males in Grade 11 cited "I have a faithful partner" as a reason why they did not use condoms (Boyce et al., 2003). This approach does not protect against STI infection. Instead, the recommendation is for STI screening at the start of a relationship, followed by condom use, repeat screening (to ensure "safety" of abandoning barriers), then mutual monogamy (Public Health Agency of Canada, 2010). Contraception

Hand-in-hand with safe sex and STI is contraception. An understanding of both is necessary, as ways to prevent STIs do not necessarily prevent pregnancy and vice versa. When the oral contraceptive pill is used consistently, after one year of use 99% of women will have prevented pregnancy (SOGC, 2004). However, use of oral contraceptives is often associated with cessation of condom use and thus reduce protection against STIs (Boyce et al., 2003). When used consistently and correctly, condoms are 98% effective in preventing pregnancy. Condom failures, mostly due to not using condoms with each act of sexual intercourse, results in 85% effectiveness (CDC, 1997). In the absence of condoms, the "withdrawal method" (coitus interruptus)

which involves ceasing penetrative intercourse before ejaculation, is usually utilized. However this method neither protects from STIs nor is it an effective contraception. For example, the pregnancy rate is 20% when coitus interruptus is used instead of condoms (SOGC, 2004). Nevertheless, 10% of grade 11 students reported that they use the withdrawal method as a form of birth control (Boyce et al. 2003). Therefore, ensuring understanding of similarities and differences between safe sex and contraception is crucial in sexual health education.

Condoms, birth control pills, and the depot provera injection have been the most familiar options of contraception for years. However, long acting reversible contraceptives, or "LARCs," are being increasingly promoted by gynecologists as an ideal option for teens and young adults (SOGC, ACOG). IUD's (both copper and hormonal) are quickly reversible contraception that provide 99.9% protection against pregnancy for up to 10 years. Even if nulliparous, IUDs are a reasonable option for young women starting on an educational or career path who desire highly reliable and long-acting contraception. . This represents an area that health professionals could address with students and patients.

The overall pregnancy rate (number of pregnancies per 1,000 women) of 15-19 year olds has been trending downwards for the last 25 years (McKay, 2006). Recent statistics shows that, teen pregnancy rate fell from 4.9% in 1994 to 3.5% in 2004 (Stats Canada, 2008). Presumably this reflects the greater control young women have over their sexual and reproductive health choices. For example young women have greater access to contraception and health care services. The vast majority of teen pregnancies are unintended; in adult women, 50% of pregnancies are unintended (but not necessarily unwelcome) compared to 80% in 15-19 year olds (Finer, 2011).

2.2.3 Popular Culture and Sexual Health

The quantifiable sexual health outcomes of sexually transmitted infections and pregnancies in teens do not tell the whole story. Thus, investigation to understand the many factors that contribute to teen sexual health such as attitudes and surrounding culture is necessary. Any official education and information is challenged by the

popular culture surrounding teenagers. Even more than in the past, music, movies, television, and advertising strategies are saturated with sexual images and messages. Breaking down the historical barriers of silence and embarrassment around sexual topics, and discussing sexuality more openly, helps society and individuals to become more informed to discuss and accept sexual choices. However, catchy lyrics with sexual themes and blatant sexual images in popular culture suggest a norm of sexual activity, and even promiscuity. Along with this they are typically dissociated from the real-life consequences. Sexual health choices in early adolescence and negative experiences are a great concern. They can result in unintended pregnancy, sexually transmitted infections (STIs), and other long-term implications such as infertility and cervical cancer (Canadian Federation for Sexual Health, 2007).

The majority of teens receive an overabundance of motivational influence from the popular culture saturating every form of media directed at the teen demographic. For example, the more African American adolescent girls were exposed to sexual stereotypes in rap music videos, the more likely they were to binge drink, smoke marijuana, have multiple sexual partners, and have a negative body image (Peterson et al., 2007). Even the suggestion of sexual activity is influential. For example, television shows that imply sexual activity or have high sexual content are associated with initiation of intercourse (Collins et al., 2004). Teens who receive little SBSHE, and report that TV and the internet are their primary source of sexual information, have the lowest knowledge scores measured in surveys. This puts them at increased risk of negative outcomes (Boyce et al., 2003). SBSHE instruction needs to be sufficient and effective enough to contextualize, and when necessary counteract, the motivations and established norms resulting from popular culture influences.

2.2.4 Sexual Health and Young Women

Twenty-nine percent of teenaged females reported having more than one sexual partner in the past year (Boyce et al., 2003). Having multiple partners is a high risk factor for infections and pregnancy. However when Grade 9 girls were asked their reasons for not having intercourse, fear of STIs (1.3%) and pregnancy (6%) were uncommon reasons (Boyce et al., 2003). Instead, the most common reasons for abstaining from intercourse

were feeling not ready (40%), lack of opportunity (11%), and not yet meeting the right person (20%) (Boyce et al., 2003).

STIs and pregnancy rates are merely endpoints of deeper issues of how young women are socialized about expectations of relationships, their need for acceptance, and the role of intimacy. Comparing genders, 33% of girls feel casual sex is acceptable compared to 66% of boys (SIECCAN, 2009). For girls, sex is linked with commitment; girls more commonly express that sexual intercourse is an expectation of a relationship, or part of how they keep a relationship (Banister, Jakubec, & Stein, 2003). Sex is also linked to self-esteem. Risky sexual behaviour (use of substances prior to sex, inconsistent contraception or protection against STIs, multiple partners) has been associated with low self-esteem and poor body image (Boyce et al., 2003).

Research that quantifies these differences in attitudes may seem to confirm what everyone already knows. However the root of why and how these attitudes develop is a much more complex issue:

> While research has pointed to the differences in the socialization of male and female roles, few interventions have attempted to change gender roles or address power differentials in relationships. The few exceptions have demonstrated mixed results, with positive changes for one sex having negative consequences on the attitudes, self-esteem and behaviours of the other. Further attention to gender and sexual relationships should be a priority in ASRH efforts, given that adolescence is a formative period for learning about gender roles and expected behaviours in interacting with the opposite sex. Programs should foster more open discussions of gender and sexual roles and relationships, refine curricula to address gender differences, and explore new avenues to achieve gender equity. (WHO, 2004)

The combination of unaddressed attitudes, misinformation, and prevalence of risky behaviours, compel action to improve preventive health and sexual health promotion. Young women are leaving high school armed with mathematics, history, and science

education for their professional lives, but all too often have inadequate or untrustworthy tools for their long term gynecologic and sexual health.

2.2.5 Sexual Health Education Needs

School-based sexual health education is the primary mode of delivery for informing teens of sexual physiology and STIs. Many perspectives are important when assessing SBSHE: how teens perceive the adequacy and delivery of SBSHE; how parents feel about both SBSHE and their role in educating their children; and how the sexual health educators (usually either teachers or PHNs) feel about the current system.

Sexual health education was assessed as part of a Canadian survey of youth, sexual health, and HIV/AIDS (Boyce, Doherty, Fortin, & MacKinnon, 2003). The vast majority of students reported school as their main source of information about sexuality, puberty, birth control, and HIV/AIDS. Unfortunately, 14% of Grade 11 students reported no education on HIV/AIDS, and 11% reported no education on sexuality and birth control, respectively. Between 30 and 56% of grade 7, 9, and 11 students reported spending either none or less than 2 hours over the last 2 years on puberty, sexuality, and birth control, and 52-66% reported the same amount of time on HIV/AIDS education. From the perspective of an educator and a sexual health expert, 2 hours is inadequate to cover the physiology, risk factors, and social implications of HIV/ AIDS. Furthermore 2 hours is grossly inadequate to properly address all of puberty, sexuality, and birth control.

Teens need more sexual health education. As teenagers mature, they become more comfortable with PHNs and physicians (Evans et al., 2002), so it is crucial for health professionals to have a visible and active role in SHE. Clinics are also important in teens trusting physicians as a group. Teens have expressed that school programs are too much about biology, and would like guest speakers, skill-building activities, and practical information such as how to access clinics and services such as public health nurses (DiCenso et al., 2001; Byers et al., 2003). Teens can easily tell when their teachers are not comfortable with sexual topics, and want specially trained educators (and often prefer health professionals over teachers) who can create an open, relaxed,

non-judgmental atmosphere (DiCenzo et al., 2001; Evans et al., 2002). When surveyed, most teens trust the information provided by physicians, and believe physicians have a role in providing sexual health information (Frappier et al., 2008). Students are also highly motivated to access clinics but are unsure of the services they provide, location, and issues of confidentiality when making appointments (DiCenzo et al., 2001; Evans et al., 2002).

Outside of SBSHE, teens can be provided with simple, reputable online resources they can refer to when the need arises (SOGC, 2006). Websites are not a substitute for face-to-face communication with educators and peers (Agrell, 2008). However, for technology-savvy teenagers, web-based resources are highly effective and widely available source of SBSHE. With the disparity of quality of Internet material, it is crucial to ensure that teens are directed to reputable sources. For example, sexetc.org and the "teen" section of the SOGC's sexualityandu.ca website have clear, accurate information on a wide range of sexuality topics.

Even though SBSHE is the main source of education for many children, schools should not be the only the only source. Frappier et al., (2008) found that 50% of teens felt school was the most valuable source of sexual health information, followed by parents (43%), then friends (29%). Unfortunately, this study also found that although teens were motivated to learn more, they found it difficult to find information on how to discuss sexual health issues with their parents. Saskatchewan parents overwhelmingly feel that SHE should be provided in schools, but also that the responsibility should be shared between schools and parents (Fast Consulting, 2008). Many parents see sex education at school as an opportunity to discuss sexuality and sexual health with their children (Frappier et al., 2008). The same study found that 76% of mothers were not able to find all the information about sexuality and sexual health they felt was required to counsel their teenagers. They reported that they desired information about physical or psychological violence, date rape, emotional aspects of sexuality. As teens mature, they tend to become more comfortable approaching parents and discussing sexuality and this is particularly true for girls (DiCenzo et al., 2001). Therefore, parents need continued access to workshops and seminars to keep current on sexuality issues.

Any improvement to the current system of SBSHE must include better support for the crucial front-line professionals responsible for the education, namely teachers and public health nurses (PHNs). In the past, Saskatchewan PHN's have delivered SBSHE. Specialized PHN's have additional SHE training, thus they are comfortable teaching and discussing sexuality. They also have extensive knowledge and access to resources, and many surveys identify PHNs as the ideal providers of SHE (Evans et al.., 2002; Byers et al.., 2003; Fast Consulting, 2008). Ensuring that SHE educators (whether PHN's or teachers) are appropriately trained is a crucial first step. In a Globe and Mail interview, Dr. McKay from SIECCAN advocated that effective SHE must be provided by people with specialized training (Agrell, 2008). Training and support for educators is crucial to the success of sexual education curricula, regardless of how the curricula itself is organized. Educators not only need knowledge, but also strategies for creating the appropriate open and non-judgmental environment. In addition, they need confidence to manage the questions and attitudes that teens may express.

2.3 The Call: Stakeholder Support

Providing comprehensive and accurate SHE information, motivation, and skills to all youth is crucial. The World Association for Sexual Health (2008) emphasizes that SBSHE programs that withhold information (particularly about contraception, HIV, and STIs) are unethical because they do not facilitate making voluntary, informed choices. Such a strong statement suggests that school boards, provincial leaders, and national agencies need to scrutinize the current system of SHE, starting with overarching policies and guidelines.

2.3.1 Provincial Support

The Saskatchewan Ministry of Health has published a specific HIV Strategy document designed to reduce the number of new HIV cases. The document has specific goals for community education, prevention, clinical management, and surveillance (SK Ministry of Health, 2010). However, a similar strategic plan document for overall sexual health has not been published. The most sexual health- centered document is a report submitted to the Minister of Healthy Living Services on the sexual and reproductive

health of Saskatchewan youth (2006). This report reviewed national documents and extracted information specific to Saskatchewan youth. Of the multiple recommendations, three stood out as influential for research direction: implementation of a standardized provincial curriculum that is informed by opinions of youth; advocating for a provincial sexual health survey; and collaborating with like-minded organizations.

A provincial sexual health education curriculum exists to address the first recommendation of a standardized provincial curriculum informed by youth. However it is unclear how much it has been influenced by youth opinion and actual needs. Multiple aspects of SBSHE would benefit from a needs assessment survey of what teenagers know, and what attitudes they express. Discovering the sexual health knowledge and attitudes of postsecondary freshmen is an indicator of what they have learned and experienced during primary and secondary school. If a survey could reveal what teens know and don't know, as well as what resources they need, recommendations could be made, thus increasing the chance of success. This could result in a change to either the primary/ secondary school curriculum, or to the information and education targeted to post-secondary and working young adults.

Second, a provincial survey would capture the issues that are important to Saskatchewan youth, and outline the similarities and differences from other provinces. Saskatchewan youth have increasing diversity in family backgrounds, ethnicities, religious affiliations, and career aspirations. Additionally, the delivery and uptake of any provincial sexual health curriculum may vary with the demographics of the school itself, such as secular or religious, influenced by a conservative or liberal district, or located in rural or urban areas. Initial research should attempt to create a sample that captures as much of this variety as possible with the goal of eventually designing a province-wide survey tool.

The third noteworthy recommendation advocates for collaboration between like-minded organizations. Improving sexual health education is the responsibility not only of teachers and public health nurses (PHNs), but also community stakeholders such as parent organizations, community leaders, and physicians. There is an unrealized but

urgent role for physicians to be involved in the design of collaborative projects between schools and the health care system (SOGC, 2007). In other provinces, physicians and medical schools are resources for SBSHE in a variety of ways, providing expertise and support to teachers and PHNs. Physician involvement in SBSHE can foster a positive relationship with educators and teens, and is part of the wider role of the physician in the community (McCall & McKay, 2004; Elias et al., 1994).

2.3.2 National Support

In Canada, national support for health promotion through SHE curriculum is provided through guidelines, policy statements, and resource websites. First, policy includes creating official or unofficial rules to guide how an individual, organization, or government should respond. It also involves creating effective policy that is a multi-step process of analysis, assessment, and development of a strategy, then identifying and convincing key players, and finally writing, implementing, and evaluating the policy (Vatanprast, 2010).

In 2008, The Public Health Agency (PHA) of Canada published a revision of "The Canadian Guidelines for Sexual Health Education." The policy outlines what sexual education curriculum should include, principles about accessibility and development, and basics of current theory and research. An extensive document, the guidelines are a resource to assess and redesign existing curricula.

The philosophy of the PHA policy document is helpful. By emphasizing the principles of knowledge, motivation, skills, and a supportive environment, the guidelines can be an essential tool in creating effective sexual health education. The document includes checklists for evaluating existing programs based on the above principles. This helps leaders evaluate what is working in their programs, and where they could improve. How frequent the guidelines are used remains an unanswered question. Because each province and school creates its own curriculum, how they choose to design SBSHE is not regulated. Therefore vast differences and inconsistencies are possible. Also, the PHA guideline acknowledges that specifics on the content of the curriculum are not

included, and references or resources to steer decision-makers in the right direction are not provided.

Many national and international organizations have websites that support SHE through providing either guidelines on how sexual education should be organized, or resources for the public, teachers, or health care workers. Besides the above mentioned policy document, the Public Health Agency of Canada provides a web resource (www.phac-aspc.gc.ca) for Health & Educational Professionals. The Sex Information and Education Council of Canada website (www.sieccan.org) regularly updates a resource document- "Sexual health education in the schools: Questions and Answers," that outlines current statistics and status of teen sexual health. The SIECCAN website is also a hub, providing links to sexual health organizations and resources around the world. The World Association for Sexual Heath website (www.worldsexology.org) provides multiple position papers, and an open access curriculum of basic sexual health topics. The SOGC provides SHE resources through an award-winning website (sexualityandu.ca). Information and resources are organized into threads directed at teens, parents, teachers, and health professionals. For example, the "Teens" section contains games and quizzes. The "Teachers" section has topics such as facts and statistics, teaching tools for the classroom, and a resource page that contains an extensive list of links to academic institutions, societies, curricula, program material, and guidelines.

2.3.3 Physician Support

Physicians are primed to become more involved in the many aspects of sexual health education. They have advanced education on sexual health, the opportunity to encourage preventive health in patients, and the potential respect of the community as leaders. In the policy statement "School-Based and School-Linked Sexual Health Education and Promotion in Canada" (2003), the Society of Obstetricians and Gynecologists of Canada (SOGC) outlines the basic principles of sexual health education, and emphasizes the need for partnerships (McCall &McKay, 2003). The authors of the statement represented the Canadian Association for School Health and the Sexual Information and Education Council of Canada (SIECCAN). First outlining

the recent research on youth, status of health, and risky behaviors, the report then outlines the need for national learning outcomes, and listed characteristics of effective programs. Coordination between schools and public health was found to be lacking. Funding for community-based clinics that are easy for adolescents to access was suggested. Physicians were seen as having an unrealized leadership role in promoting programs, and helping to educate those providing the curriculum. More reproductive health education at the medical student and residency level was strongly recommended.

The SOGC policy statement document encourages collaboration, and succinctly summarizes many of the issues that challenge school-based sexual education. Policies of the SOGC are posted publicly online, and are frequently used by residents and other SOGC members. Because gynecologists endorse this policy, it should inspire both training and practicing specialists to become more involved in SHE both locally and nationally. However, the impact of this policy statement is unknown because it is impossible to ascertain how often a given policy is read or downloaded. . Not all policies have enforceable rules, and as relevant as the SOGC recommendations may be, there are no means to guarantee implementation. The document is 7 years old and there is still a paucity of gynecologists' involvement in local SHE design, so the full impact of the policy is hopefully still to come. Physicians, government, and school boards need to incorporate the policy in order for it to evolve from opinion into action.

A role still exists for physicians to become more involved in sexual education of teens. However similar to teachers, physicians often feel they have inadequate skills for the needs of adolescents in their offices. Most are also so busy with their practices that they are not seeking involvement in school based sexual education programs. This deficit has been addressed by various physicians and training programs, but only in isolated projects and published articles (Bearman, 1968; Kassirer & Griffiths, 1997; Jobanputra, 1999). More involvement of physicians at the trainee level is needed. Just as teens are in a crucial stage of developing life-long attitudes, medical students and residents are at a crucial stage of learning the culture of social responsibility, and fostering skills for sexual health promotion can develop career-long interests (Foley et al., 2010).

The article “Adolescent Health Promotion and Risk Reduction: Cementing the Social Contract between Pediatricians and Schools” (1994) attempts to empower physicians by providing information on the importance of physicians’ involvement (Elias, Kress, Gager, & Hancock, 1994). The authors refer to a “social contract” that physicians have to provide preventive medicine, and be involved in sexual education to increase the health of the community, and to facilitate designing and applying clinical research. School-based programs are seen as the ideal place for interventions because students are a captive audience, and a successful program can be replicated in other schools. After using curricula to open the door for physician involvement, the article strongly advocates for subsequently increasing the availability of PHNs and clinics.

As an empowering strategy, Elias et al., (2004) summarized multiple issues surrounding school based sexual education, all through the lens of how physicians can be more involved. Physicians are viewed as having a potential for a “radiating influence” by becoming involved with SHE program design or teacher/ counselor education. This could be said for involvement of family doctors, gynecologists, and trainee. Involvement of professionals is a win-win situation as long as processes exist to seek out and encourage their involvement.

The Royal College of Physicians and Surgeons of Canada (RCPSC) is assertively promoting strategies in residency training that promote the wider scope of physician roles in society. The CanMEDS project (Canadian Medical Education Directions for Specialists) outlines the core competencies a physician should pursue to fulfill their medical expert role in society: manager, professional, communicator, scholar, collaborator, and advocate (Frank, 2004). Collaborator, professional, and advocate are among the most difficult to incorporate and evaluate in medical trainees. A definite role exists for projects that describe a need in a given population, and thus inspire and compel physicians to advocate for change and be involved in collaborative solutions. SBSHE is an excellent example of such a project, as it includes an under-serviced patient population, supporting existing community services, and advocating for preventive health and change in government policy.

Chapter 3

3. Research Methodology

This chapter outlines the research study in detail. The purpose, instrument, validity, method, data collection and analysis, and limitations are described. This study was approved by University of Saskatchewan Behavioural Research Ethics Board on June 13, 2011 (BEH# 11-53).

3.1 Purpose

The purpose of this study was to describe the sexual health knowledge and attitudes of a sample of Saskatchewan post-secondary freshmen aged 17-19. My study was guided by these primary research questions:

1) What do Saskatchewan freshmen know about the general sexual health topics of physiology, contraception, and sexually transmitted infections?

2) What are common attitudes about sexual activity, risk behaviors, and relationships?

3) What were the main sources of sexual health information for these freshmen, and do they express a need for more education and resources?

To answer these questions, a descriptive web-based survey of sexual health knowledge, attitudes, and behaviours was administered to volunteer freshmen aged 17-19 at the University of Saskatchewan (U of S) and Saskatchewan Institute of Applied Science and Technology (SIAST). Even though my medical specialty is focused on women's health, both genders were included in the research as their culture is shared and their influence reciprocal. My hope was the data would form the groundwork of a needs assessment that may help guide educators and policy makers, and direct physicians towards collaboration and advocacy projects. I also hoped that the findings could contribute to long term improvement in quality of school-based and school-linked sexual health education.

3.2 Instrument

The research instrument was a descriptive web-based survey of knowledge, attitudes, and behaviours (see Appendix A). A review of the literature did not yield a survey perfectly suited to the research questions that included basic sexual demographics of behaviors, incorporated the knowledge and attitudes of teens, and addressed SHE resources. Therefore, a web-based tool was created on Surveymonkey, drawing from existing surveys: Sexual Health Knowledge, Attitudes, and Experiences (Hoff et.al., 2003); the Toronto Teen Survey (Larkin & Flicker, 2006); the Sexual Knowledge and Attitude Survey (Browder, 2008). As these surveys were published and validated in their original studies, the format of the original questions was maintained whenever possible, with adjustments made to accommodate the web-based format. The purpose of this research was not to design and validate a new survey, but rather to draw from exiting knowledge in the formation of a locally appropriate and relevant needs assessment. Questions specific to local demographics, resources, and sexual health education were added.

The final survey was 65 questions, and arranged into sexual health themes: "Demographics" (including sexual experience/ behaviours); "Sexual Health Knowledge Sources" (with a subsection specific to school based education); "Relationships and Peers" (attitudes about relationships, risky behaviors, and peer pressure); "Pregnancy and Contraception" (attitudes about teenage pregnancy, knowledge and attitudes about fertility, birth control, and condoms); and "Sexually Transmitted Infections" (knowledge of symptoms and consequences of STIs and HIV/ AIDS). Knowledge questions were multiple choice or true/ false. Attitude questions were 3- or 5-point Likert scales consistent with the original format, with open-ended "other" fields where appropriate.

Progression through the survey was unidirectional. Demographic questions that were mandatory (i.e. gender, sexual orientation) cued the respondent to answer the question before moving onto the next page. Skip logic was used to customize the survey for the respondent. For example, a student who did NOT recall receiving sexual health education in school skipped the detailed questions on SBSHE, and a student who was

NOT sexually active skipped questions related to intercourse experiences. Questions that were more sensitive in nature allowed the respondent to decline responding. Because knowledge questions were phrased as both correct and incorrect statements, upon completion of the survey respondents viewed a final page with correct information and reputable local and web-based resources.

3.3 Validity and Reliability

The questions from previously published surveys have already been validated and therefore they have been shown to have acceptable reliability. Unvalidated questions created specifically for this study population were evaluated when the entire survey received feedback. In April and May 2011, validation of the amalgamated web-based survey occurred in two ways. Content validity (Litwin, 1995) was achieved by inviting experts in the fields of survey research and sexual health, such as obstetrician/ gynecologists and public health nurses, to comment on question-order bias, clinical relevance, and ensure questions were not leading. Thirteen provided feedback on the survey's inclusion of important concepts, and suggestions to improve clarity and validity were incorporated. Face validity (Litwin, 1995) involved 6 volunteer students from Nutana Collegiate High School. Contact was made with the principal, the school health nurse, and the Wellness class instructor. Responses were used to analyze and clarify interpretation of meaning and readability of the survey, and estimate completion time. These responses were not included in the final data analysis.

Following the administration of the survey, the analysis was also anticipated to provide some discriminate construct validity. It was expected that students would have variable knowledge of the topics, and show a variety of opinions about sexual health and their school based education. This variety suggests the students were responding honestly to the questions, rather than simply answering repetitively to the questions.

3.4 Site and Participant Selection

The population of interest was 17-19 year olds who had completed their SBSHE. The study protocol was described and an invitation to participate was sent to the University of Saskatchewan (UofS), the Saskatchewan Institute of Applied Science & Technology

(SAIST), and the Saskatchewan Indian Institute of Technologies (SIIT). These sites were chosen because they enroll students from across the province. Therefore, they provided a sample of the population with a variety of social and educational backgrounds and career aspirations who were accessible through a standardized communication media. Using a postgraduate population also ensured that participants had completed their SBSHE and could provide their own consent.

The study was approved by the UofS Behavioural Ethics Research Board as well as the SIAST research review committee. SIIT declined participation in the study. Inclusion criteria included being a male or female student between the ages of 17 and 19, and enrolled at the chosen institutions. Participants were required to understand English, provide consent, and have access to the Internet.

3.5 Data Collection

U of S and SIAST each generated a target group of enrolled students who met the age criteria during the study period. They then forwarded an invitation email with a description of the study protocol, consent, and a hyperlink to the survey to these students. On October 1, 2011, the invitation was sent to 4,122 UofS students and 2,800 SIAST students. Two reminders were sent over the next 4 weeks, and the study was closed on December 1, 2011.

3.6 Data Analysis

As each question was analyzed individually, partially completed surveys were not excluded. Basic descriptions of responses were analyzed from the original Surveymonkey tool. Even though gender comparisons were not the primary objective, results were also analyzed with SPSS comparing males and females for significant differences. Because the sample size was large enough, Likert scales were compared with 2-tailed T-test analysis. Non-parametric data (multiple choice and yes/no responses) were compared with Chi Square analysis. Factor analysis was used to look for clustering of responses. Knowledge questions with definitive correct and incorrect responses were assigned a score (one point for correct answer, zero for incorrect) and each respondent was assigned a knowledge score reported as percent correct.

The Information/ Motivation/ Behaviour model was used to group data results, and direct inquiry into associations between variables. The clusters of higher versus lower knowledge scores were analyzed for differences in attitudes (motivations) and sexual experiences (behaviours).

The data will be stored for 5 years in paper or electronic form in the office of Dr Ardelle Stauffer as well as Dr. Marcel D'Eon (Educational Support & Development-ES&D). The Surveymonkey survey will be transferred to ES&D under Dr. D'Eon's management. After 5 years, the raw data will be deleted but the original survey will be retained.

3.7 Delimitations and Limitations

The issue of teen sexual health and preventive medicine is complex. This research was not able to either describe the complete picture of teen knowledge and attitudes, or prescribe details of how to improve sexual health education for teens. Limitations included: generalizability across the population, selection bias, and the nature of the survey tool.

First surveying every teen across the province was not possible, and certain sampling limitations were inevitable. By choosing the postgraduate population, the respondents had completed school-based sexual health education curriculum, and were able to comment on their experience. It was beyond the scope of this research to involve post-secondary institutions elsewhere in the province, but the cross-sectional design between two institutions in Saskatoon was hoped to capture a variety of demographic backgrounds and life aspirations.

Next, the study was limited to youth who presented to the sites chosen, and where Internet access was available. Fluency in English was also required. A province-wide health survey such as the BC Adolescent Health Survey (Smith et al., 2009) requires a provincial mandate and is beyond the scope of this research. However, the data from this study could clarify the need for such an assessment. Teens not pursuing post-secondary education were not be represented, biasing the results to a higher socio-economic class. I acknowledge that volunteer bias was present. If anything, this may

have resulted in an overestimation of sexual health knowledge. Perhaps if moderate knowledge gaps were discovered in the more narrow study population, the effect would be more pronounced in the broader average population of teenagers. Notwithstanding, I hoped that common themes would provide useful feedback to all SBSHE programs, regardless of the location or organization.

Finally, my goal was to begin to describe the wider landscape of sexual health and the education system in Saskatchewan. A survey did not allow the in-depth discovery that focus groups or interviews might have achieved; it neither extensively assessed fine details of sexual practices, nor questioned all areas of sexual health knowledge. Rather, the survey focused on broad concepts that could influence motivations and behaviors, which I hoped would have more practical value to sexual health education designers and providers. Additionally, the web-based format decreased reliance on human distribution and collection of paper surveys. Compared to interviews, a self-directed survey allowed teens to reflect and respond to multiple issues in a short amount of time. I hoped that the anonymity of a web-based survey allowed them to feel comfortable and be honest, which may be a challenge in face-to-face interviews on sexual topics.

Chapter 4

4. Results

Data were reported for each question as aggregates of male and female responses unless a significant gender difference was found between genders with Chi Square or T-test analysis. Characteristics of the sample were described, and the primary research questions addressed. Noteworthy response tables are included below, and the unabridged survey results are in Appendix A.

4.1 Demographics

An invitation to the survey was sent to 6922 students in total and the response rate was 13.4% (n = 515), with 354 females and 161 males participants. Rate of completing the entire survey was 69% (n = 354). Of those who entered the survey (n=515), females more frequently completed the survey (77%) compared to males (45%) (p = 0.001). The majority of the respondents were age 18 (57%); the remainder were age 19 (33%), or 17 (10%).

Table 1

Demographics

	No. of Participants	%
Age 17	50	10
Age 18	295	57
Age 19	170	33
Female	354	69
Male	161	31
University of Saskatchewan	433	85
SIAST	72	15

U of S students comprised 85% (n = 433) of the respondents, with the remainder from SIAST (15%, n = 72). Canadian ethnicity was self-identified in 93% of the respondents. The respondents were not limited to choose one ethnicity; the other ethnicities self-

identified were European (15%), First Nation/Metis/Inuit (6%), Asian (3%), and East Indian (1.6%).

Respondents were asked to describe the school they attended from grades 9-12 (see Table 2). Most of them were from a school in Saskatoon (33%, n = 116) or a rural community (37%, n = 169), while five percent were from a first nations Community. The majority of respondents described their school as public (63%, n = 264) versus catholic 25% (n = 116).

Table 2
Participants' Description of School Attended from Grades 9-12

Schools	No. of Participants	%
Public	284	62
Catholic	116	25
In Saskatoon	152	33
In Regina	16	4
In Prince Albert	24	5
In a First Nations Community	5	1
In A Rural Town Or In The Country	169	37
Home Based	11	2
Outside of Saskatchewan	54	12
Total Responses	458	

4.2 Behaviors

Sexual orientation was self-identified as heterosexual (92%), bisexual (5%) and homosexual (3%). The majority of respondents had some level of sexual experience, as 85% had kissed someone romantically, 74% had been intimate or touched another person's genitals, and 66% stated that they had experienced oral sex. Sexual intercourse

(either vaginal or anal) had been experienced by 62%. Females were significantly more likely to have had intercourse (66%) compared to males (55%) (χ^2 (1, 515) 6.23, $p < 0.013$). Coitarche (also known as age at first sexual intercourse or sexual debut) was normally distributed from age 14-19, and 8 respondents reported having first sexual intercourse at aged 13 or under (See Table 3). Most respondents (43%) had one previous sexual partner, while 6% have more than 10 partners (see Table 4). Of those who were sexually active, only 23% had been tested for HIV, and 24% had been tested for STIs.

Table 3

Participants' Age at First Sexual Intercourse

Age	No. of Participants	%
10	2	0.6
11	0	0
12	1	0.3
13	5	2
14	24	8
15	46	15
16	83	27
17	77	25
18	63	20
19	9	3
Total Responses	310	

Table 4

Number of Sexual Partners of Participants

No. of Partners	No. of Participants	%
1	132	43
2 to 3	88	28
4 to 5	45	15
6 to 7	17	5
8 to 9	9	3
10 to 12	9	3
13 to 15	4	1
16 to 19	1	0
20 to 25	2	1
More Than 25	3	1
Total Responses	310	

Fifty-five percent of those sexually active knew their last partner for over 7 months before having sexual intercourse, while 11% had known their most recent partner for a week or less. Two percent (n = 8) had experienced a pregnancy. As shown in Table 5, birth control pills were “always” used by 62%, while condoms were “always” used by 47%, and rarely or never used by 16% of respondents. Overall 57% used a condom the LAST time they had sex, however a gender difference was found. Males were more likely to have used a condom (69%) compared to females (51%) (χ^2 (1,313) 8.23, $p<0.004$).

Table 5

Types of Contraceptive Methods Most Frequently Used by Participants

Birth Control Methods	Always n(%)	Sometimes n(%)	Rarely n(%)	Never n(%)
Nothing For Birth Control	13 (5)	28 (10)	29 (10)	205 (74)
Condoms	146 (47)	113(37)	33(11)	17(6)
Birth Control Pill	182(62)	35(12)	12(4)	67(23)
Birth Control Patch Or Vaginal Ring	6(2)	6 (2)	5 (2)	258(94)
IUD (Intrauterine Device)	6 (2)	2 (1)	2 (2)	264(96)

4.3 Research Question 1: Knowledge

What do Saskatchewan freshmen know about the general sexual health topics of physiology, contraception, and sexually transmitted infections?

Sexual heath knowledge questions were not organized as a single section, but rather distributed among the themes of “Pregnancy and Contraception” and “Sexually Transmitted Infections.” Questions included: ovulation and fertilization (#39, #40); side effects and risks of birth control pills (#41, #42); condom facts (#44, #45); intrauterine device facts (#49); STI facts (#51, #52); differentiating the most common symptoms of gonorrhea, chlamydia, syphilis, and herpes (#53-#56); human papilloma virus facts (#57); and HIV facts (#60, #61).

Only 39% of respondents correctly identified that ovulation occurs 2 weeks before the menstrual cycle. Most respondents (90-92%) knew that fertility was not decreased if the male or female had been drinking.

When asked to identify “highly effective ways to prevent pregnancy,” 51% chose anal sex, and 12% chose withdrawal before ejaculation. Douching was correctly identified by 87% as not effective. The majority of respondents (95%) identified birth control pills as a highly effective method of contraception.

When knowledge of birth control pills was queried further, 72% felt birth control pills were very effective while 24% felt they were only somewhat effective. If the pill was used, 77% felt condoms were still necessary to prevent pregnancy. The majority of respondents properly identified birth control pills as not effective protection against STIs (92%), or HIV/ AIDS (92%). Fifty-seven percent thought that birth control pills resulted in weight gain, and 25% felt the pill resulted in difficulties conceiving after discontinuing. Most respondents (76%) appropriately answered that the pill needs to be taken at the same time every day.

Condoms were identified as being helpful in preventing pregnancy (98%), but only 57% saw them as very effective. Similarly, condoms were viewed to be helpful in preventing the spread of STIs (91%), but only 48% felt they were very effective. Only 49% answered that condoms were very effective in preventing HIV/AIDS. Vaseline jelly was viewed by 26% as suitable to use with condoms.

Only 71% thought that an intrauterine device was highly effective for pregnancy prevention. Knowledge of intrauterine devices was lower than the pill or condoms, with the majority of participants expressing insufficient knowledge to answer the factual questions. Half of the respondents correctly identified that IUD's do not protect against STIs (55%), but only 17% had heard of the traditional copper IUD, while 44% of respondents had heard of the newer hormone IUD (see Table 6).

Table 6

Participants' Knowledge of Intrauterine Devices

Statements About IUD	True n(%)	False n(%)	I Do Not Know n(%)
Can Be Made Of Copper	66 (17)	69 (18)	247 (65)
Can Be Made Of Plastic And Progesterone (A Hormone)	168 (44)	9 (2)	206 (54)
Are Safe For Women Who Have Not Had Children	126 (33)	34 (9)	223 (58)
Are Highly Effective At Preventing Pregnancy For At Least 3 years	137 (36)	24 (6)	222 (58)
Are Highly Effective At Preventing STI's	10 (3)	210 (55)	162 (42)

Perceived knowledge was queried before the questions about sexually transmitted infections. The majority felt they knew nothing or very little about chlamydia (62%), gonorrhea (63%), syphilis (64%), and HPV (58%). Confidence in HIV/AIDS knowledge was highest, with 73% feeling they knew "some" or "a lot" (see Table 7).

Table 7

Participants' Responses When Asked How Much They Felt They Knew About Sexually Transmitted Infections

Sexually Transmitted Infection	Nothing At All n(%)	Only A Little n(%)	Some n(%)	A Lot n(%)	Response Count
Chlamydia	74 (19)	161 (42)	117 (31)	28 (7)	380
Gonorrhea	81 (21)	158 (42)	119 (31)	21 (5)	379
Herpes	39 (10)	119 (31)	152 (40)	70 (18)	380
Syphilis	86 (23)	156 (41)	108 (29)	27 (7)	377
Genital warts	37 (10)	149 (39)	152 (40)	41 (11)	379
Human Papilloma Virus (HPV)	78 (21)	142 (37)	119 (31)	41 (11)	380
AIDS and HIV	24 (6)	79 (21)	144 (38)	131 (35)	378
Total Responses					380

The low confidence in knowledge was consistent with the accuracy of knowledge. When given a list of symptoms (discharge from the vagina or penis, open sores, rash) and asked to identify which was associated with gonorrhea, chlamydia, or syphilis, and if antibiotics were treatment, the majority of respondents (65%) answered “I do not know.” Herpes (also known as herpes simplex virus, or HSV) was slightly better identified, with 57% recognizing open sores; However, 56% associated herpes with “raised lumpy growths,” likely confusing HSV with HPV. Only 20% of the respondents correctly identified that herpes does not affect long term fertility.

Human papillomavirus (HPV) was also poorly understood, with the majority (66%) of students answering the symptom questions with “I do not know.” While 64% recognized that HPV can cause cancer, only 16% recognized that HPV also causes genital warts. The majority (77%) identified that sexually active women need a speculum exam and Pap test, and correctly recognized that the HPV vaccine does not

eliminate the need for Pap tests (73%) or condoms (85%). When asked about exposure to the HPV vaccine, 81% knew that an HPV vaccine exists, 42% expressed an interest in receiving the vaccine, and 38% had no interest in receiving the vaccine.

For HIV/AIDS questions, the majority correctly answered general knowledge questions about transmission (see Table 8). Males scored 81% correct on the cumulated HIV knowledge test, and females 79%, an insignificant difference between genders. However, some common facts about HIV were still answered poorly, as only 63% correctly answered that HIV/AIDS are prevented with condom use, and 50% correctly identified that HIV infection can occur without necessarily causing AIDS.

Table 8

Participants' Responses to Knowledge Testing Statements About HIV

HIV	True n(%)	False n(%)	I Do Not Know n(%)	Response Count
Is Blocked By Using Condoms	224 (63)	100 (28)	33 (9)	357
Is Blocked By Using Birth Control Pills	6 (2)	330 (93)	20 (6)	356
Is Treated With Antibiotics	54 (15)	232 (65)	69 (19)	355
Can Infect A Person Without Causing AIDS	178 (50)	107 (30)	70 (20)	355
Can Be Passed By Having Penis/ Vagina Intercourse With An Infected Person	336 (94)	1 (0.3)	19 (5)	356
Can Be Passed By Having Anal Intercourse With An Infected Person	307 (86)	10 (3)	39 (11)	356
Can Be Passed By Sharing An Intravenous Needle With An Infected Person	332 (94)	2 (1)	22 (6)	356
Can Be Passed By French Kissing With An Infected Person	59 (17)	254 (72)	42 (12)	355
Can Be Passed From A Mother To Her Unborn Baby	318 (89)	8 (2)	30 (8)	356
Can Be Detected Easily Because The Person Looks Sick	12 (3)	294 (83)	49 (14)	355
Attacks The Body's Ability To Fight Off Illnesses	312 (88)	8 (2)	35 (10)	355

For overall STI knowledge, most respondents recognized that STIs can be spread even when there are no symptoms (82%). The majority (77%) also strongly or somewhat agreed that STIs are still a concern even if they have sex with only one person. Seventy-three percent agreed (strongly or somewhat) that they would not necessarily know if their partner had an STI. Eighty-one percent agreed that STIs can have serious health effects. In addition, 49% of females and 33% of males correctly recognized that a quarter of sexually active people under the age of 25 will acquire an STI every year. Respondents were split on the feeling that bringing up the topic of STIs with a partner was difficult (40%) versus not difficult (37%).

Sexual health knowledge questions that had a factual correct answer were coded and a score tabulated, with one point assigned for each correct answer. Overall, males scored 29% and females 24%, an insignificant difference between genders.

4.4 Research Question 2: Attitudes

What are common attitudes about sexual activity, risk behaviors, and relationships?

Respondents were asked how confident they were that they had enough knowledge about various sexual health topics. Highest confidence ("quite" or "extremely" confident) (72%) was expressed for how to use condoms, how to protect self from HIV/ AIDS (78%), birth control methods and which is the best choice for them (70%), and what is abortion and whether they would choose it (67%).

Rather than define "safer sex," respondents were asked what "safer sex" meant to them (see Table 9); most defined as sex with a condom (75%), or sex with other types of contraception (58%). Respondents strongly or somewhat agreed that sex with fewer partners qualified as "safer sex" (61%). There were significant differences between males and females, with males more likely to somewhat or strongly agree that oral sex is a form of "safer sex" ($t(511) = 4.1$, $p < 0.001$). Compared to males, females more strongly disagreed that "safe sex" included withdrawing before ejaculation ($t(507) = 2.5$, $p < 0.01$), sex during the "safe" time of the month ($t(509) = 2.2$, $p < 0.03$), and anal sex ($t(512) = 5.3$, $p < 0.001$).

Table 9

Participants' Perceptions of "Safer Sex"

Safe Sex Statements	Strongly Disagree n(%)	Somewhat Disagree n(%)	Unsure n(%)	Somewhat Agree n(%)	Strongly Agree n(%)	Response Count
Sex With A Condom	22 (4)	5 (1)	6 (1)	96 (19)	386 (75)	515
Sex Using Other Kinds Of Birth Control (Like The Pill, IUD, etc.)	29 (6)	21 (4)	13 (3)	151 (30)	298 (58)	512
"Pulling Out" Or Withdrawing Before Ejaculation	262 (52)	117 (23)	37 (7)	63 (12)	30 (6)	509
Sex During "Safe" Time Of The Month	264 (52)	117 (23)	54(11)	41 (8)	35 (7)	511
Sex With Fewer Partners	97 (19)	57 (11)	45 (9)	156 (31)	156 (31)	511
Oral Sex	113 (22)	88 (17)	80(16)	160 (31)	72 (14)	513
Anal Sex	235 (46)	109 (21)	93(18)	56 (11)	21 (4)	514

Of the 37% (n = 199) of respondents who have NOT had sexual intercourse, many reasons for abstinence were expressed. The most common were "have not met the right person" (65%), "not ready" (56%), fear of pregnancy (43%), fear of HIV/ AIDS (40%), and fear of other STIs (41%). Less common reasons for abstinence were waiting for marriage (38%), religious beliefs (29%), or parental disapproval (18%). Females were significantly more likely to state they were not ready ($t(186) = -7.056$, $p < 0.001$)), or were afraid of pregnancy ($t(184) = -3.96$ $p < 0.001$), HIV/ AIDS ($t(185) = -2.841$, $p < 0.005$), or other STIs ($t(185) = -3.1$, $p < 0.002$).

Factors contributing to sexual activity were queried. "Somewhat" or "very important" reasons for having sexual intercourse the first time were most commonly love for the other person (83%) and curiosity (84%) (see Table 10).

Table 10

Participants' Reasons for Having First Sexual Intercourse

Reasons for Coitarche	Not Important at All n(%)	Somewhat Important n(%)	Very Important n(%)	Response Count
Love For the Other Person	53 (17)	73 (24)	184 (59)	310
Have Or Keep A Relationship	159 (51)	79 (26)	72 (23)	310
Curiosity	50 (16)	180 (58)	78 (25)	308
Influence Of Alcohol/Drugs	246 (80)	39 (13)	24 (8)	309
Got Carried Away	205 (66)	75 (24)	29 (9)	309
Loneliness	250 (81)	48 (16)	9 (3)	307
Was Sexually Coerced/Abused	279 (91)	17 (6)	10 (3)	306
Total Responses				310

A wide variety of attitudes about relationships and sexual activity were expressed (see Table 11). Twenty-four percent strongly or somewhat agreed that sexual intercourse should wait until marriage, while 39% strongly or somewhat disagreed with this idea. Thirty percent strongly or somewhat agreed that "oral sex is not a big deal compared to sexual intercourse." Participants overall trended towards permissive attitudes about sexual activity, with the majority expressing that sexual intercourse is appropriate for two people in love. However, when asked if sexual intercourse strengthens a relationship, most respondents clustered around a neutral attitude. When asked about pregnancy, 86% felt that getting pregnant as a teen would be a very negative outcome. Sixty-two percent were actively trying to prevent pregnancy with birth control, while 45% felt they would be unable to deal with an unplanned pregnancy.

Table 11

Participants' Attitudes Towards Sexual Activity

Sex and Relationship Attitudes	Strongly Disagree n(%)	Somewhat Disagree n(%)	Neutral n(%)	Somewhat Agree n(%)	Strongly Agree n(%)	Response Count
People Should WAIT To Have Sex Until They Are Married	84 (21)	70 (18)	147(37)	39 (10)	54 (14)	394
It Is a Good Idea To WAIT To Have Sex Until You Are Married, But Almost Nobody Waits	37 (9)	69 (18)	83(21)	121 (31)	83 (21)	393
It Is All Right For Two People To Have A Sex Before Marriage If They Are In Love	29 (7)	29 (7)	56 (14)	114 (29)	162 (42)	390
Having Sex Strengthens A Relationship	35 (9)	74 (19)	117(30)	97 (25)	68 (17)	391
Once You Have Had Sex, It Is Harder To Say No The Next Time	38 (10)	57 (15)	81 (21)	142 (36)	75 (19)	393
If You Have Been Seeing Someone For A while, It Is Expected That You Will Have Sex	71 (18)	77 (20)	61 (16)	141 (36)	44 (11)	394
Oral Sex Is Not A Big Deal Compared To Sexual Intercourse	89 (23)	105 (27)	82 (21)	92 (23)	25 (6)	393
It Is all Right To Have Sex With Someone That You Will Not See Again	211 (54)	76 (19)	62 (16)	30 (8)	15 (4)	394
It Is Not A Big Deal If People Make Decisions About Sex When They Are Drinking 0r Using Drugs	240 (61)	95 (24)	43 (11)	10 (3)	6 (2)	394
Total Responses						394

The vast majority (85%) held the belief that having sex while under the influence of alcohol or drugs was not a good idea. Despite this, 83% of respondents had the view that illicit substances were used with intercourse at least half (if not most) of the time. Furthermore, 52% expressed a concern that they would do more sexually than they intended because of the influence of alcohol. Furthermore, over 80% expressed a lot of concern ("somewhat or very") about each topic of sexual violence, physical violence, HIV/ AIDS, STIs, and unintended pregnancy. However, they perceived their peers as being much less concerned about HIV/ AIDS, substance abuse, and sexual or physical violence.

Attitudes about condoms were assessed. Respondents had variable attitudes about stigmas and perceptions with condom use (see Table 12). When asked about personal attitudes about condoms, 23% somewhat or strongly agreed "it is not a big deal to have sex without a condom once in a while," and 28% felt that condoms often break (see Table 12). Seventy percent agreed that sex without condoms is not worth the risk.

Table 12

Participants' Responses To How They Would Feel If Romantic Partner Suggested a Condom

Condom Use Views	Strongly Disagree n(%)	Somewhat Disagree n(%)	Neutral n(%)	Somewhat Agree n(%)	Strongly Agree n(%)	Response Count
The Person Cared About Me	13 (3)	7 (2)	68 (18)	109 (29)	184 (48)	381
Relieved	14 (4)	8 (2)	63 (17)	91 (24)	206 (54)	382
Like the Person Respected Me	13 (3)	11 (3)	53 (14)	97 (25)	208 (55)	382
That the Person was Being Responsible	10 (3)	5 (1)	16 (4)	72 (19)	277 (73)	380
Suspicious or Worried About the Person's Sexual History	98 (26)	88 (23)	94 (25)	87 (23)	14 (4)	381
Like The Person Was Suspicious or Worried About My Sexual History	103 (27)	89 (23)	90 (24)	85 (22)	15 (4)	382
Insulted	290 (76)	42 (11)	39 (10)	2 (1)	9 (2)	382
Total Responses						382

Table 13

Participants' Attitudes Towards Condom Use

Condom Attitudes	Strongly Disagree n(%)	Somewhat Disagree n(%)	Neutral n(%)	Somewhat Agree n(%)	Strongly Agree n(%)	Response Count
It is Not a Big Deal to Have Sex Without Condom Once In Awhile	169 (44)	73 (19)	51 (13)	64 (17)	26 (7)	383
You Only Need to Use Condoms If You Have Many Sexual Partners	268 (70)	57 (15)	18 (5)	23 (6)	15 (4)	381
Buying Condoms Is Embarrassing	79 (21)	55 (15)	64 (17)	115 (30)	67 (18)	380
Condoms Often Break	48 (13)	111 (29)	115(30)	82 (22)	26 (7)	382
It is Difficult to Bring Up Topic of Condoms With My Partner	183 (48)	66 (17)	87 (23)	34 (9)	11 (3)	381
Sex Without Condoms IS NOT Worth the Risk	27 (7)	22 (6)	66 (17)	82 (22)	186 (49)	383
Total Responses						383

In the end, how respondents felt about practical sexual health scenarios was queried as an end-point. Approximately half of respondents felt comfortable discussing STIs or birth control with a partner or with their doctor. Most (75%) felt they could deal with the pressures to have sex, 72% expressed confidence in how to use condoms, and 69% felt confident in their knowledge of birth control methods. Less confidence was expressed on how to know if they had an STI (39%), where to go for testing (56%), and HPV protection (37%) and vaccination (27%).

4.5 Research Question 3: Sexual Health Education

What are main sources of sexual health information for Saskatchewan freshmen, and do they express a need for more education and resources?

When given a list of 14 possible sources for sexual health information, and asked how much they learned from each, the top sources (learned “quite a bit” or “a lot”) were the internet (53%), friends (46%), teachers (39%), and printed media (34%). Respondents were asked if they had accessed sexual health information websites designed specifically for teens by pro-sexual health associations such as the Society of Obstetricians and Gynecologists of Canada. Only 13% had visited www.beinggirl.ca and found it helpful, and 10% had visited the www.sexualityandu.ca. Even fewer had accessed www.hpvinfo.ca (5%) or www.sexetc.org (2%).

Respondents were then given a list of sexual health topics and asked how well their education from ANY source covered the topics (see Table 14). When the same list was presented within the context of SBSHE, almost all topics were less well covered in school. When respondents were asked what they thought should be covered in SBSHE, the vast majority expressed interest in every topic (see Table 15).

Table 14

Participants' View of their Level of Sexual Health Education

Sexual Health Topics	Perceived Level of Knowledge n(%)					
	None	Very little	Some	Quite a bit	A lot	Response Count
Healthy Dating Relationships	18 (4)	32 (7)	113 (25)	166 (36)	130(28)	459
Sexual Abuse or Sexual Violence	27 (6)	53 (12)	132 (29)	146 (32)	100(22)	458
Date Rape "Awareness"	24 (5)	91 (20)	142 (31)	125 (27)	76 (17)	458
Sexual Anatomy/ Physiology	8 (2)	44 (10)	106 (23)	157 (34)	144(31)	459
Sexual Abstinence (Not Having Sex)	31 (7)	46 (10)	110 (24)	132 (29)	138(30)	457
Sexual Pleasure (Masturbation)	130 (28)	129 (28)	102 (22)	54 (12)	42 (9)	457
Skills for Communicating/ Talking About Sex	94 (21)	128 (28)	135 (30)	58 (13)	42 (9)	457
Pregnancy and Birth Control Options	19 (4)	51 (11)	110 (24)	130 (28)	149(33)	459
Condom Use	20 (4)	48 (11)	101 (22)	130 (28)	159(35)	458
Sexually Transmitted Infection Information	7 (2)	30 (7)	92 (20)	148 (32)	181(40)	458
HIV/ AIDS information	7 (2)	41 (9)	93 (20)	147 (32)	170(37)	458
Sexual Orientation	91 (20)	108 (24)	111 (24)	76 (17)	71 (16)	457
Abortion	97 (21)	114 (25)	111 (24)	67 (14)	67 (15)	456
Total Responses						459

Table 15

Participants' Views of Appropriate SBSHE Topics

	Should be Taught n(%)			
SHE Topics	Yes	No	Unsure	Response Count
Healthy Dating Relationships	437 (95)	15 (3)	7 (2)	459
Sexual Abuse or Sexual Violence	426 (93)	23 (5)	10 (2)	459
"Date Rape" Awareness	421 (92)	22 (5)	16 (4)	459
Sexual Anatomy/Physiology	424 (93)	17 (4)	17 (4)	458
Sexual Abstinence (Not Having Sex)	358 (78)	61 (13)	40 (9)	459
Sexual Pleasure (Masturbation)	259 (57)	118 (26)	81 (18)	458
Skills for Communicating/ Talking about Sex	403 (88)	36 (8)	20 (4)	459
Pregnancy and Birth Control Options	435 (95)	13 (3)	11 (2)	459
Condom Use	425 (93)	20 (4)	13 (3)	458
Sexually Transmitted Infection Information	442 (96)	10 (2)	7 (2)	459
HIV/ AIDS Information	441 (96)	9 (2)	9 (2)	459
Sexual Orientation	354 (77)	60 (13)	44 (10)	458
Abortion	356 (79)	51 (11)	45 (10)	452
Total Responses				459

Eighty-six percent of respondents recall receiving SBSHE. Thirty-eight percent described the SBSHE received as abstinence-focused, while 51% recalled their SBSHE as comprehensive (abstinence and methods of birth control). Sixty-one percent felt that their teacher felt comfortable discussing sexual health topics.

The sexual health topics well covered (over 50% answering "quite a bit" or "a lot") included healthy dating relationships, sexual anatomy/ physiology, sexual abstinence,

condom use, STI information, and HIV/AIDs information. Fourteen percent stated their SBSHE did not discuss contraception at all. Approximately the same proportion felt that contraception was discussed as an effective form of birth control and STI prevention (35%) versus presented as a poor method (32%)

After asking respondents to grade how much sexual health information they gained from a variety of sources, they were then asked from which of those sources they would like to receive more information. The highest ranked sources were doctors (68%), PHNs (57%), their partner (47%). Respondents also expressed interest in a concise information book (66%). Females consistently expressed greater interest in more information compared to males: from doctors (73% versus 59%, $א^2$ (457)13.5 $p<0.001$), nurses (60% versus 47%, $א^2$ (457) 6.3 $p<0.04$), and websites (71% versus 58%, $א^2$ (457) 7.7 $p<0.02$). The minority of respondents (39%) wanted more class time in school for SBSHE, but when asked if they wanted more guest speakers (doctors or nurses) for their school-based classes, more (58%) were interested (11% were unsure). More interaction with the medical community was also demonstrated by 55% expressing interest in easier access to a sexual health clinic.

Chapter 5

5. Discussion

Understanding how Saskatchewan teens resemble the national cohort is valuable for determining if significant differences exist and cause concern. Acknowledging differences in methodology and thus imperfect correlations, some results will be compared to national statistics and recent Canada-wide surveys to assess similarities and differences between this sample of Saskatchewan teens and national trends.

5.1 Demographics & Behaviors

Average age at first intercourse and incidence of sexual activities such as oral sex was consistent between the study population and previously published Canadian statistics (CFSH, 2006; McKay, 2006; SIECCAN, 2009). More females (66%) than males (55%) were sexually active; this is a consistent extension of Canadian data of Grade 11 students whereby sexual intercourse was more common in females (53%) than males (45%) (Boyce et al., 2002). Only 24% recalled being tested for STI's including HIV, which contributes to the problem of unknown true incidence of STIs: due to only a fraction of the population being screened, and therefore inadequate treatment (although chlamydia, gonorrhea, HSV, syphilis, and HIV have treatments available). The Centre for Disease Control in Canada recommends yearly screening of all sexually active people under the age of 25. This is because the vast majority of STI infections are asymptomatic (for example, 80% of HPV infections, 60% of herpes, 50% of chlamydia in females and 70% in males). The Public Health Agency of Canada also recommends screening at the commencement of any new relationship, with condom use until repeat screening at 3 months for 3 months to ensure a dormant infection has not surfaced (PHAC, 2009). Further research could elucidate the motivations and barriers that affect access to screening for Saskatchewan post-secondary and working young adults.

5.2 Knowledge and Attitudes

Having accurate information on sexual health topics such as physiology, contraception, and STIs is the bedrock for resultant attitudes and behaviors. However the respondent's average grade on the knowledge questions was less than 30%. It was surprising that in a postsecondary population, general knowledge (such as identifying symptoms of an STI) was universally so low that stratification of higher and lower scores, or male versus female, was not possible.

Students did seem self-aware of this knowledge deficit, as when asked how much knowledge they had about STIs, 58-64% felt they had very little knowledge about chlamydia, gonorrhea, syphilis, and HPV. This correlated with an average knowledge score of 26% correct. Students were equally self-aware of knowledge they did possess; 73% felt they knew "some" or "a lot" about HIV/AIDS, and the average knowledge test score was 80%. As sexual health education has evolved to focus more on HIV/AIDS, it is not surprising but still disappointing that students had low knowledge scores of other STIs. The most commonly contracted STIs are herpes, HPV, gonorrhea, and chlamydia (CDC, 2009), and these infections still pose a great (and more common) risk to youth and young adults. The majority of the respondents did not recognize that vaginal/ penile discharge is a common symptom of chlamydia or gonorrhea, or that antibiotics are treatment. Recognizing symptoms and the role of diagnosis and treatment is crucial in reducing the spread of STIs, and is an area for physicians and teachers to focus on in sexual health education.

The survey responses described not only a lack of information but also misinformation about various contraceptive methods. The pill or patch was being used as contraception by 60%; 57% believed the pill caused weight gain, and 25% believed that fertility was reduced after taking the pill. These are common misconceptions I address with my patients, and are difficult to completely eliminate as the myth is continually propagated. Only 17% and 44% of respondents had heard of the copper IUD, and hormone IUD respectively. Long acting reversible contraceptives, or "LARCs," are being increasingly promoted by gynecology associations (SOCG, ACOG) as an ideal option for teens and young adults. IUD's (both copper and hormonal) are quickly reversible contraception

that provide 99.9% protection against pregnancy for 5 years. An IUD is an excellent option over the pill, especially for degree-seeking young women who desire highly reliable contraception. This represents an area that health professionals can deliberately address with students and patients.

Contraception interferes with fertilization and implantation of a pregnancy. Safer sex is specifically defined as barriers and non-penetrative methods to reduce transmission of STI's by decreasing exposure. A previous Canada-wide survey found that 6% of teens used withdrawal as a method of birth control (CFSH, 2007). In this research, 12% of participants felt that withdrawal was effective birth control, and 18% agreed (somewhat or strongly) that it was a form of safer sex. Withdrawal is not effective for either contraception or safer sex. Respondents strongly or somewhat agreed that oral sex (45%) and anal sex (15%) were forms of safer sex, but both carry transmission risk because infectious discharge or skin surfaces are still contacted. Tissue trauma caused by anal sex has been shown to increase the transmission rate of HIV/AIDS compared to vaginal intercourse (MacDonald et al., 1990). These results clearly indicate that general knowledge about contraception and safer sex, and appropriate (and inappropriate methods) to achieve them, are deficient in university freshmen, and likely an extension of the deficient knowledge in high school.

Despite higher confidence and overall knowledge about HIV/AIDS, misinformation about HIV/AIDS was still prevalent. Recent national surveys report a yearly 25% incidence of STIs in youth and young adults under 25 years old, and half of new HIV infections occur in this age group (Forhan, 2008). Students expressed conflicting attitudes about perceived risk. Although becoming infected with an STI was of great concern, condoms were not consistently used, and a quarter did not even feel that condoms were effective in preventing HIV/AIDS. Furthermore, 43% of respondents did not use a condom at last sexual intercourse; this is higher than the 25-30% reported in recent studies (Rotermann, 2008; SIECCAN, 2009).

Condoms are a well-documented and effective method of preventing the transmission of HIV/AIDS, chlamydia, and gonorrhea. Even though they do not provide complete protection against HPV or herpes (because not all of the infectious skin is not covered

by a condom), condoms are still crucial for STI prevention. To protect against STIs, only water based lubricants should be used, as oil or petroleum-based lubricants weaken the latex and decrease the effectiveness of spermicide, a fact identified by only 48% of respondents. More attention needs to be paid to education regarding condoms, and further research is warranted to investigate motivations for unprotected intercourse.

Even though many respondents were not using condoms consistently, 76% perceived using condoms as a sign of caring or respect for the other person, and 89% thought it was the responsible thing to do. However, only half thought that sex without condoms is not worth the risk, and 26% felt condom use was a marker of suspicious sexual history. These mixed and contradictory attitudes suggest that more information and discussion about condoms is still needed, and progress still needs to be made in promoting condom use as a routine and normal element of sexual activity.

Participants overall trended towards permissive attitudes about sexual activity. The majority expressed that sexual intercourse is appropriate for two people in love before marriage; 55% waited over 7 months to have intercourse with their most recent partner, and felt that love for the other person was very important in their decision to have intercourse (59%). However, many respondents were ambiguous that sexual intercourse strengthens a relationship, with the responses clustering around a neutral attitude on the Likert scale.

5.3 Education

The majority of students (86%) recalled receiving sexual health education in school, but it is unclear why 14% did not. This deserves further inquiry, as some form of school based sexual health education is in the provincial curriculum. Even though 63% described their schooling as public, only 51% described their sexual health education as comprehensive (compared to abstinence based). Comprehensive curricula are designed to include all the issues listed, but the low knowledge scores and misperceptions suggest a need for more education for all students, regardless of curriculum style.

Confidence in adequate knowledge was lowest for STI testing and diagnosis, HPV information and vaccination, and emergency contraception. These topics can easily be

addressed with factual information, either in class time curricula or with pamphlets or on websites. Increasing confidence and knowledge about STI and HPV testing and diagnosis are the first steps in decreasing long term risks of infertility and pre-cancerous cervical changes. With Saskatchewan having the highest rate of teenage pregnancy, providing adequate information about contraception and emergency contraception is also crucial.

Respondents ranked internet and friends as their most common sources of SHE, but expressed an interest in receiving more information from doctors and nurses. Physicians were listed as one of the lowest sources for where students had received their sexual health knowledge thus far. Receiving more time SBSHE class-time was not ranked highly as a way to receive more information, while more information from physicians was ranked highest. It may be that respondents do not want more class time based on their experience with SBSHE, but would be interested in modifications of the system. Supporting this hypothesis is that respondents expressed a need for more information about reputable websites, information books, and more interaction with health professionals, whether through guest speakers or health clinics. This warrants further research such as qualitative interviews describing student perceptions of SBSHE, and student's opinions of how to modify the content or delivery of the curriculum. Physicians need to take advantage of this opportunity and use their expertise to address a need expressed directly by teens, and play an active role in preventive health and positive sexual health promotion.

The sexuality websites queried in the survey are designed for teens and young adults, endorsed and designed by medical professionals, and marketing is carefully targeted to in youth magazines, on campus posters, in sexual health clinics, and from other youth websites. As these resources are designed and targeted towards teens, it is interesting that so few had heard of or accessed them. This deserves further inquiry to discover how to better disseminate such information to the target audience.

Many students expressed a need for easier access to a sexual health clinics and more information from PHNs. Establishing more school-based clinics in Saskatchewan could help meet this need. School-based sexual health clinics have been shown to be helpful

in promotion of contraception. Physicians, medical trainees, and/or nurses can operate these clinics within the school, providing an accessible location for students to access treatment or resources in confidence (SOGC, 2006). Since many students asked for a sexual health information book or advice on reputable websites, these resources can be readily available at a school-based clinic. Additionally, having health care providers in the schools makes them more accessible as guest speakers in sexual health classes.

Chapter 6

6. Conclusion

Teenagers are at a crucial juncture where decisions about sexual practices and establishing life-long healthy habits have a profound impact on the rest of their lives. We could be doing more to educate and promote sexual health. This study aimed to gain insight about the sexual health knowledge, attitudes, and education of a sample of 17-19 year old freshmen in Saskatchewan. It forms the first step of a teen sexual health needs assessment in Saskatchewan, and may provide both motivation and direction to educators, medical professionals, and policy makers involved in sexual health of teens. The results of this study not only provided direction for improving sexual health education and a compelling indication of the need for more involvement of health professionals in the process, but also suggested many areas of further inquiry.

6.1 Implications for Theory and Practice

The respondents had lower knowledge about general sexual health topics such as sexually transmitted diseases, and they were self-aware of this deficit. Respondents expressed interest in gaining more information, and having more access to sexual health services and health professionals. Having an insight of knowledge deficits is an encouraging result. The association of being aware of knowledge deficits with expressing an interest or motivation to acquire more information supports the Information-Motivation-Behavior model (Fisher & Fisher, 1998). If Saskatchewan teens do not have basic information of symptoms and implications of sexually transmitted infections, messages to promote safe sex behaviors are going to be less motivational and effective, thus have less impact on reducing risk behaviors as late teens and young adults. Because effective curriculum needs to move beyond delivery of information and address motivations and skills, revising sexual health education (both organized curriculum and accessible educational materials) is a crucial first step, and this need was clearly demonstrated in this study. Maintenance and further development of sexual health attitudes and practices continues outside of the class room, highlighting

the need for parents, physicians, and campus health clinics to continue promotion of healthy sexuality and positive outcomes. This is a societal responsibility that schools have been expected to fulfill with little support, and needs much more attention from the medical and political communities.

In a political climate of health care and education cutbacks, already over-burdened teachers have lost the manpower of public health nurses funded by the health region. Only teachers know how the medical community can best support them, whether by providing teach-the-teacher training, or by nurses and physicians being more involved in the front lines of administering the actual curriculum. Collaboration between teachers and health practitioners could potentially result in a shared advocacy approach that would be more compelling to the ministries of health and education. How far reaching and difficult this would be is unknown. Likely, a few passionate teachers and physicians or nurses would need to lead a dialog and pilot solutions in order to determine the best approach.

Beyond school-based sexual health education, medical professionals can improve care for teens in many practical ways. Simply knowing that teens value the opinions and contributions from public health nurse and physicians should be a powerful motivator for increased involvement and advocacy for SBSHE. Outside of schools, health providers in clinics can make a more concerted effort to build rapport with teen patients, and create an open environment for discussion and education. At the minimum, physicians (and those in training) could find ways to increase the visibility/ awareness of medically accurate reputable websites and resources available to teens and educators.

Solutions are not limited to high school students. The survey provided valuable information about the freshman student population enrolled in classes, thus still accessible through the educational system and campus culture. Professors and health care providers on campus could use the major knowledge deficiencies uncovered to shape sexual health education in freshman classes, or guide initiatives at sexual health clinics on campus. Information pamphlets, screening drives for Pap tests or STI screening, or high risk behavior awareness campaigns are just a few possibilities.

6.2 Future Directions

This research was a broad stroke to query multiple aspects of sexual health in a freshman population. It was not an attempt to develop a validated survey tool. However, the results suggest areas that could be focused on and described in more detail using existing survey tools. For example, the low sexual health knowledge scores warrant a more in depth assessment, and the Sexual Knowledge and Attitude Survey from Browder (2008) referenced in this study could be used in its entirety.

The low knowledge scores could either reflect the efficacy of the SBSHE received, or of information retained or gained since high school, thus contributing the long term working knowledge of the respondents. Performing a thorough provincial assessment is warranted, not only of the school based curriculum implemented, but also the students' achievement of learning objectives and knowledge acquisition. Because a provincial curriculum is provided to guide sexual health education in the schools, this topic should be tested with a standardized exam similar to other school subjects. This could allow school boards and health regions to identify areas that need to be changed or strengthened in current SBSHE curricula. A province wide assessment would also allow for comparisons between rural and urban centers, and help health authorities identify regions of the province where more resources are required: more PHNs; sexual health clinics; resources for school counselors; or community based interventions aimed at not only preventing negative outcomes but also encouraging positive relationships.

From the post-secondary perspective, using volunteers from the entire UofS and SIAST freshman student population had the advantage of representing a wide range of interests and personal backgrounds from across the province. However, a 13% response rate has significant volunteer bias. With the sexual nature of the survey, the bias could reflect students more comfortable with sexual subject matter, skewing the results towards a more sexually active demographic and not capturing data from more conservative students. This could be remedied in a few different ways. First, collaboration with faculty instructing large freshman classes (for example freshman psychology) could result in recruitment of a large cohort of students with less bias. Additionally, those not pursuing post-secondary education were not represented, and it would be beneficial to

learn if or how their sexual health behaviours and attitudes differ (this would be a more difficult demographic to capture after high school. Finally, a very low number of First Nations students participated in the study. The Saskatchewan Indian Institute of Technologies was approached to participate but unfortunately declined. Teenage pregnancy and STI rates are high in the First Nations population (PHAC, 2009), therefore further studies to understand knowledge, motivations, and behaviors of First Nations teens are warranted.

Both genders were included in the survey for a more global understanding of teen sexual health. However, this did require question design appropriate for both sexes, and gynecology-specific questions that were of particular interest to me were excluded. From a gynecologic perspective, understanding attitudes of young women can help address sexual health education for both sexes, and target issues specific to each gender. More research and studies are still needed that focus on adolescent women as a unique group with specific risks and needs.

Because the survey revealed an interest in more involvement of the health community, pilot projects that address this need could be trialed and studied for effectiveness. For example, medical students or physician residents could receive extra sexual health training to become "experts," and be available as guest speakers for sexual health education. The uptake of this service could be studied, and qualitative or quantitative data could be gathered from the high school students to assess the impact.

Sexual health is a unique intersection where the interests of many stakeholders meet. Promoting sexual health education in a sustainable manner requires the opinions and contributions of educators, parents, school boards, public health workers, physicians, politicians, and spiritual leaders. Each of these societal members can have a powerful impact on today's youth. Balancing the interests of all these stakeholders requires diplomacy and teamwork, but if disease prevention and healthy sexuality is the goal, collaboration will result in a stronger and more unified approach. I hope that my research will contribute to such collaborations, and play a small part in improving sexual health education for Saskatchewan youth and young adults.

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Appendix A: Survey Instrument

Sexual Health Survey of 16-19 Year Old SK Students							
Q1. I agree to participate in this survey.							
Answer Options	Response Percent	Response Count					
YES	100.0%	515					
NO	0.0%	0					
	answered question	515					
	skipped question	0					
Q2. What is your age?							
Answer Options	Response Percent	Response Count					
younger than 16	0.0%	0					
16	0.0%	0					
17	9.7%	50					
18	57.3%	295					
19	33.0%	170					
20	0.0%	0					
21 or older	0.0%	0					
	answered question	515					
	skipped question	0					
Q3. What is your gender?							
Answer Options	Response Percent	Response Count					
Male	31.3%	161					
Female	68.7%	354					
	answered question	515					
	skipped question	0					

Q4. What is your CURRENT postal code?							
Answer Options	Response Count						
	357						
answered question	357						
skipped question	158						
Q5. What is your birthday?							
Answer Options	Response Percent	Response Count					
Birthdate:	100.0%	515					
	answered question	515					
	skipped question	0					
Q6. What best describes your ethnic background? (Check all that apply)							
Answer Options	Response Percent	Response Count					
Canadian	92.6%	477					
Aboriginal (First Nation, Metis, Inuit)	6.0%	31					
American	1.4%	7					
European	14.8%	76					
East Indian	1.6%	8					
Middle Eastern	1.2%	6					
Asian	3.1%	16					
Latin American	0.8%	4					
African	1.2%	6					
Caribbean	0.2%	1					
Other (please specify)	1.6%	8					
	answered question	515					
	skipped question	0					
Q7. How did you hear about this survey?							
Answer Options	Response Percent	Response Count					

Through University of Saskatchewan (UofS)	84.7%	433					
Through Saskatchewan Institute of Applied Science and Technologies (SIAST)	14.1%	72					
Other (please specify)	1.2%	6					
	answered question	511					
	skipped question	4					
Q8. How would you describe your sexuality?							
Answer Options	Response Percent	Response Count					
"heterosexual" (attracted to the opposite sex)	91.5%	471					
"homosexual" (attracted to the same sex)	2.7%	14					
"bisexual" (attracted to both)	5.0%	26					
Other (please specify)	0.8%	4					
	answered question	515					
	skipped question	0					
Q9. Safer sex" means different things to different people. Please answer if you feel each of the following is a form of "safer sex":"							
Answer Options	Strongly disagree	Somewhat disagree	Unsure	Somewhat agree	Strongly agree	Response Count	
Sex with a condom	22	5	6	96	386	515	
Sex using other kinds of birth control (like the pill, IUD, etc)	29	21	13	151	298	512	
"Pulling out" or withdrawing before ejaculation	262	117	37	63	30	509	
Sex during "safe" time of the month	264	117	54	41	35	511	
Sex with fewer partners	97	57	45	156	156	511	
Oral sex	113	88	80	160	72	513	
Anal sex	235	109	93	56	21	514	
					answered question	515	
					skipped question	0	

Q10. Have you ever had any of the following experiences?							
Answer Options	yes	no	unsure	Response Count			
kissed someone romantically	437	69	8	514			
been with someone in an intimate or sexual way	383	124	7	514			
touched someone else's genitals (private parts)	378	133	2	513			
had oral sex	340	168	4	512			
			answered question	514			
			skipped question	1			
Q11. For the rest of this survey, HAVING SEX" or "SEXUAL INTERCOURSE" will refer to vagina or anal intercourse. Have you had sexual intercourse?"							
Answer Options	Response Percent	Response Count					
No	37.7%	194					
Yes	62.3%	321					
	answered question	515					
	skipped question	0					
Q12. Please rate how important each of the following reasons were in your decision to not have sexual intercourse?							
Answer Options	not important at all	somewhat important	very important	Response Count			
not ready	29	56	106	191			
have not had the opportunity	79	66	46	191			
have not met the right person	27	39	125	191			
want to wait until married	81	36	72	189			
religious beliefs	99	36	55	190			
parents would disapprove	88	68	34	190			
friends would disapprove	136	35	19	190			

fear of pregnancy	46	63	80	189			
fear of HIV/ AIDS	51	64	75	190			
fear of other STI's	44	68	78	190			
			answered question	191			
			skipped question	324			
Q13. At what age did you FIRST have sexual intercourse?							
Answer Options	Response Percent	Response Count					
10	0.6%	2					
11	0.0%	0					
12	0.3%	1					
13	1.6%	5					
14	7.7%	24					
15	14.8%	46					
16	26.8%	83					
17	24.8%	77					
18	20.3%	63					
19	2.9%	9					
	answered question	310					
	skipped question	205					
Q14. Please rate how important each of the following reasons were in why you had sexual intercourse the FIRST time?							
Answer Options	not important at all	somewhat important	very important	Response Count			
love for the other person	53	73	184	310			
to have or keep a relationship	159	79	72	310			
curiosity	50	180	78	308			
influence of alcohol/ drugs	246	39	24	309			
got carried away	205	75	29	309			
loneliness	250	48	9	307			
was sexually coerced/ abused	279	17	10	306			
Comments				13			
			answered question	310			

			skipped question	205			
Q15. Up to now, with how many people have you had sexual intercourse?							
Answer Options	Response Percent	Response Count					
1	42.6%	132					
2 to 3	28.4%	88					
4 to 5	14.5%	45					
6 to 7	5.5%	17					
8 to 9	2.9%	9					
10 to 12	2.9%	9					
13 to 15	1.3%	4					
16 to 19	0.3%	1					
20 to 25	0.6%	2					
more than 25	1.0%	3					
	answered question	310					
	skipped question	205					
Q16. When you have sexual intercourse, what do you choose for birth control (check all that apply):							
Answer Options	always	sometimes	rarely	never	Response Count		
nothing for birth control	13	28	29	205	275		
condoms	146	113	33	17	309		
birth control pill	182	35	12	67	296		
birth control patch or vaginal ring	6	6	5	258	275		
IUD (intrauterine device)	6	2	2	264	274		
Comments					12		
				answered question	310		
				skipped question	205		
Q17. The LAST TIME you had sexual intercourse, did you and your partner use a condom?							

Answer Options	Response Percent	Response Count					
Yes	56.8%	176					
No	43.2%	134					
	answered question	310					
	skipped question	205					
Q18. How long did you know your most RECENT partner before having sexual intercourse for the first time?							
Answer Options	Response Percent	Response Count					
one night stand	7.1%	22					
< 1 week	3.9%	12					
< 1 month	6.8%	21					
1 to 6 months	27.7%	86					
7-12 months	13.2%	41					
over 1 year	41.3%	128					
	answered question	310					
	skipped question	205					
Q19. If you are a female, have you ever been pregnant? If you are a male, have you been in a relationship where your partner got pregnant?							
Answer Options	Response Percent	Response Count					
No	97.4%	302					
Yes, once	1.6%	5					
Yes, twice	0.0%	0					
Yes, three times	0.3%	1					
Yes, more than three times	0.6%	2					
	answered question	310					
	skipped question	205					

Q20. There are many places to get information on sexual health issues like relationships, sexually transmitted infections (STI's), and unintended pregnancy. Please indicate how much you have learned from each of the following sources about sexual health?							
Answer Options	Nothing	Very little	Some	Quite a bit	A lot	Response Count	
friends	19	67	161	144	67	458	
parents/ caregivers	58	147	124	89	39	457	
siblings or other relatives	185	139	78	32	20	454	
boyfriend/ girlfriend, or partner	110	84	121	87	57	459	
teacher	47	75	155	124	54	455	
school counsellor	261	89	61	35	13	459	
public health nurse	128	74	109	86	61	458	
doctor	160	98	103	61	35	457	
community clinic	304	73	44	23	13	457	
religious leader	352	42	38	13	12	457	
internet	47	58	108	125	119	457	
printed media (magazines, books)	80	83	138	101	55	457	
TV shows and movies	90	119	131	68	49	457	
phone lines (Kids Help Phone etc)	425	20	9	1	2	457	
Comments						11	
					answered question	459	
					skipped question	56	
Q21. From which sources WOULD YOU LIKE to get more information about sexual health?							
Answer Options	No	Yes	Not certain	Response Count			
friends	217	154	84	455			
parents/ caregivers	268	121	68	457			
siblings or other relatives	328	72	57	457			
boyfriend/ girlfriend, or partner	178	213	64	455			
teacher	252	141	62	455			
school counsellor	278	113	65	456			
public health nurse	149	258	50	457			
doctor	95	311	51	457			
community clinic	233	161	62	456			
religious leader	364	49	44	457			
internet	188	201	66	455			
printed media (magazines, books)	226	169	60	455			
TV shows and movies	297	90	69	456			

phone lines (Kids Help Phone etc)	346	48	58	452			
Comments				6			
			answered question	459			
			skipped question	56			
Q22. Please indicate if you have been to any of the following websites for sexual health information:							
Answer Options	No, I have not been to this site	Yes, but it WAS NOT helpful	Yes, and it WAS helpful	Response Count			
www.sexualityandu.ca	407	5	47	459			
www.hpvinfo.ca	435	3	20	458			
www.spiderbytes.ca	451	1	4	456			
www.beinggirl.ca	384	13	59	456			
www.sexetc.org	448	1	9	458			
www.scarleteen.com	433	2	22	457			
www.stayteen.org	438	2	15	455			
Comments				9			
			answered question	459			
			skipped question	56			
Q23. Please estimate how much you feel your sexual health education (from ANY source) covered each of the following topics:							
Answer Options	None	Very little	Some	Quite a bit	A lot	Response Count	
healthy dating relationships	18	32	113	166	130	459	
sexual abuse or sexual violence	27	53	132	146	100	458	
Date rape" awareness"	24	91	142	125	76	458	
sexual anatomy/ physiology (how things work)	8	44	106	157	144	459	
sexual abstinence (not having sex)	31	46	110	132	138	457	
sexual pleasure (masturbation)	130	129	102	54	42	457	
skills for communicating/ talking about sex	94	128	135	58	42	457	
pregnancy and birth control options	19	51	110	130	149	459	

condom use	20	48	101	130	159	458	
sexually transmitted infection (STI) information	7	30	92	148	181	458	
HIV/ AIDS information	7	41	93	147	170	458	
sexual orientation	91	108	111	76	71	457	
abortion	97	114	111	67	67	456	
					answered question	459	
					skipped question	56	
Q24. If more information on sexual health was available to you, how would you prefer to get the information? Check all that apply:							
Answer Options	Yes	No	Unsure	Response Count			
More class time in school	181	219	59	459			
More guest speakers for the school based classes (for example, nurses or doctors)	265	144	50	459			
More training for my teachers so they can answer my questions	140	249	68	457			
More information for my parents/ caregivers so they can answer my questions	109	278	69	456			
Easier access to a sexual health clinic	253	144	60	457			
A small book with all the important information	300	116	42	458			
Advice on which websites have good information	309	106	43	458			
Comments				3			
			answered question	459			
			skipped question	56			
Q25. How would you describe the ELEMENTARY school where you spent most of up to grade 8? (check all that apply)							
Answer Options	Response Percent	Response Count					
public	60.3%	276					

catholic	26.9%	123					
in Saskatoon	32.5%	149					
in Regina	3.5%	16					
in Prince Albert	3.3%	15					
in a First Nations Community	1.1%	5					
in a rural town or in the country	38.6%	177					
home based	3.1%	14					
outside of Saskatchewan	15.3%	70					
Comments		22					
	answered question	458					
	skipped question	57					
Q26. How would you describe your school where you spent most of grades 9 to 12? (check all that apply)							
Answer Options	Response Percent	Response Count					
public	62.0%	284					
catholic	25.3%	116					
in Saskatoon	33.2%	152					
in Regina	3.5%	16					
in Prince Albert	5.2%	24					
in a First Nations Community	1.1%	5					
in a rural town or in the country	36.9%	169					
home based	2.4%	11					
outside of Saskatchewan	11.8%	54					
Comments		27					
	answered question	458					
	skipped question	57					
Q27. Do you feel the following topics should be covered in SCHOOL BASED SEXUAL HEALTH EDUCATION:							
Answer Options	Yes	No	Unsure	Response Count			
healthy dating relationships	437	15	7	459			
sexual abuse or sexual violence	426	23	10	459			
"date rape" awareness	421	22	16	459			
sexual anatomy/ physiology (how things work)	424	17	17	458			

sexual abstinence (not having sex)	358	61	40	459			
sexual pleasure (masturbation)	259	118	81	458			
skills for communicating/ talking about sex	403	36	20	459			
pregnancy and birth control options	435	13	11	459			
condom use	425	20	13	458			
sexually transmitted infection (STI) information	442	10	7	459			
HIV/ AIDS information	441	9	9	459			
sexual orientation	354	60	44	458			
abortion	356	51	45	452			
Comments				19			
			answered question	459			
			skipped question	56			
Q28. Do you recall getting sexual health education classes IN SCHOOL							
Answer Options	Response Percent	Response Count					
yes	85.8%	394					
no	14.2%	65					
	answered question	459					
	skipped question	56					
Q29. Please remember where in school you recall getting sexual health education (check all that apply):							
Answer Options	Yes	No	Don't Recall	Response Count			
Elementary school	297	61	13	371			
Biology class	172	154	22	348			
Psychology class	58	251	38	347			
Life Skills/ Life Transitions class	118	191	37	346			
Wellness class	196	137	19	352			
Physical Education class	84	242	22	348			
Home Economics class	8	314	21	343			
Comments				49			

			answered question	372			
			skipped question	143			
Q30. How would you describe the sexual health education you received IN SCHOOL? Check all that you agree with:							
Answer Options	Response Percent	Response Count					
My class focused on abstinence until marriage.	37.9%	141					
Contraception (birth control methods) was not discussed.	14.0%	52					
Contraception was discussed, and focused on how POORLY they prevent pregnancy and sexually transmitted infections (STI's).	31.5%	117					
Contraception was discussed, and focused on how WELL they prevent pregnancy and sexually transmitted infections (STI's).	34.9%	130					
My class discussed all options equally, including abstinence and birth control to prevent pregnancy and STI's.	51.3%	191					
Contraceptives were presented as a safer way of having sex than using NO protection.	58.1%	216					
My teacher seemed comfortable discussing sexual health topics	60.8%	226					
I felt comfortable to go talk to my teacher in private if I had questions	17.7%	66					
	answered question	372					
	skipped question	143					
Q31. How much do you feel your SCHOOL-BASED sexual health education taught you about each of the following topics:							

Answer Options	nothing	a little	some	quite a bit	lots	Response Count	
healthy dating relationships	46	64	102	104	53	369	
sexual abuse or sexual violence	56	79	110	85	38	368	
"date rape" awareness	72	98	95	81	23	369	
sexual anatomy/ physiology (how things work)	24	62	84	108	90	368	
sexual abstinence (not having sex)	33	56	84	93	102	368	
sexual pleasure (masturbation)	215	77	44	22	11	369	
skills for communicating/ talking about sex	102	110	92	44	20	368	
where to go for sexual health care, STI testing, etc	104	80	85	60	40	369	
pregnancy and birth control options	46	57	87	95	83	368	
condom use	48	60	72	95	93	368	
sexually transmitted infection (STI) information	22	42	60	125	120	369	
HIV/ AIDS information	21	48	70	111	118	368	
sexual orientation	155	90	64	39	21	369	
abortion	136	90	57	52	30	365	
					answered question	369	
					skipped question	146	
Q32. How confident are you that you have enough knowledge about the following topics:							
Answer Options	Not confident at all	A little confident	Somewhat confident	Quite confident	Extremely confident	Unsure	Response Count
How to protect yourself from HIV/ AIDS and other STI's	6	24	62	176	150	1	419
How to know if you have HIV/ AIDS or other STI's	52	78	122	99	61	6	418
Where you would go to get tested for HIV or STI's	41	57	78	112	130	1	419
How to protect yourself from cancer caused by HPV	96	75	72	84	74	18	419
How the HPV vaccine works	141	83	62	55	59	16	416
Birth control methods and which I would choose if I needed it	28	31	59	112	179	7	416
How to use condoms	30	34	47	87	214	7	419
What emergency contraception is and whether I would choose it	72	43	56	89	144	12	416
What abortion is and whether I would choose it	25	48	55	101	181	9	419
Comments							15

						answered question	419
						skipped question	96
Q33. How confident are you that, if the following situations came up, you would know what to do?							
Answer Options	Not at all confident	A little confident	Somewhat confident	Quite confident	Extremely confident	Unsure	Response Count
How to bring up sexual health topics such as STI's and birth control with a partner	19	56	89	114	140	1	419
How to bring up sexual health topics such as STI's and birth control with a nurse or doctor	23	60	98	134	99	4	418
How to bring up sexual health topics such as STI's and birth control with a parent/ guardian	144	93	67	58	50	4	416
How to talk to a partner about what you feel comfortable doing sexually	21	34	65	119	176	4	419
How to deal with pressure to have sex	15	24	59	138	177	4	417
How alcohol and drugs might affect decisions about having sex	11	25	47	126	203	6	418
Comments							3
						answered question	419
						skipped question	96
Q34. Please answer how you feel about the following statements about relationships and being sexually active:							
Answer Options	Strongly disagree	Somewhat disagree	Neutral	Somewhat agree	Strongly agree	Response Count	
People should WAIT to have sex until they are married	84	70	147	39	54	394	
It is a good idea to WAIT to have sex until you are married, but almost nobody waits	37	69	83	121	83	393	

It is all right for two people to have a sex before marriage if they are in love	29	29	56	114	162	390	
Having sex strengthens a relationship	35	74	117	97	68	391	
Once you have had sex, it is harder to say no the next time	38	57	81	142	75	393	
If you have been seeing someone for awhile, it is expected that you will have sex	71	77	61	141	44	394	
Oral sex is not a big deal compared to sexual intercourse	89	105	82	92	25	393	
It is all right to have sex with someone that you will not see again	211	76	62	30	15	394	
It is not a big deal if people make decisions about sex when they are drinking or using drugs	240	95	43	10	6	394	
Comments						13	
					answered question	394	
					skipped question	121	
Q35. People have different opinions about alcohol and sex. Of people your age, how often do you think they drink or use drugs before having sex?							
Answer Options	Response Percent	Response Count					
never	2.0%	8					
rarely	15.0%	59					
about half of the time	63.9%	251					
most of the time	19.1%	75					
Comments		12					
	answered question	393					
	skipped question	122					
Q36. Young people can feel a lot of pressure from a lot of different places or people, and for different reasons. Thinking about yourself, how much pressure have you felt to do the following?							

Answer Options	none	a little	some	quite a bit	a lot	Response Count	
smoke cigarettes	199	82	68	27	18	394	
drink alcohol	52	49	98	104	90	393	
use drugs	185	83	76	29	19	392	
sexual activity	100	82	106	64	42	394	
					answered question	394	
					skipped question	121	
Q37. In your opinion, in general, how concerned are OTHER PEOPLE your age about the following topics:							
Answer Options	Not concerned	Somewhat concerned	Very concerned	Unsure/ do not know	Response Count		
sexual violence like rape or sexual assault	85	207	85	17	394		
physical violence	92	210	76	15	393		
AIDS and HIV (the virus that causes AIDS)	125	180	71	18	394		
Sexually transmitted infections (STI's)	75	213	93	13	394		
unplanned or unintended pregnancy	28	141	217	6	392		
drinking too much	258	96	27	11	392		
using drugs	184	159	37	12	392		
smoking cigarettes	231	121	31	11	394		
smoking marijuana	225	133	22	13	393		
discrimination based on race or ethnicity	115	177	84	16	392		
discrimination based on sexual orientation	94	192	94	14	394		
depression or other mental illness	146	181	41	24	392		
Comments					8		
				answered question	394		
				skipped question	121		
Q38. How concerned are you PERSONALLY about the following topics?							

Answer Options	Not concerned	Somewhat concerned	Very concerned	Unsure/ do not know	Response Count		
sexual violence (rape or assault)	50	154	184	6	394		
other physical violence	58	165	162	8	393		
HIV and AIDS	67	148	172	7	394		
other sexually transmitted infections	51	145	189	7	392		
unplanned or unintended pregnancy	46	87	252	6	391		
cigarettes and health risks from smoking	95	108	183	7	393		
being discriminated against because of how you look or think	102	148	134	7	391		
that you will do more sexually than you planned because you are drinking or using drugs	182	119	85	7	393		
depression or other mental illness	122	137	128	7	394		
Comments					14		
				answered question	394		
				skipped question	121		
Q39. In a 28 day menstrual cycle, the usual time for ovulation is							
Answer Options	Response Percent	Response Count					
2 weeks BEFORE the menstrual period starts	39.2%	150					
2-4 days BEFORE the menstrual period starts	22.7%	87					
2-4 days AFTER the menstrual period ends	9.9%	38					
impossible to calculate	1.3%	5					
I do not know	26.9%	103					
	answered question	383					
	skipped question	132					
Q40. Fertilization of the egg by the sperm (contraception): (check true or false)							
Answer Options	TRUE	FALSE	I do not know	Response Count			
happens in the uterus	202	137	44	383			

happens up to one week after the egg is released (ovulation)	207	101	75	383			
is less likely to occur if the guy has been drinking	20	345	18	383			
is less likely to occur if the girl has been drinking	10	351	22	383			
			answered question	383			
			skipped question	132			
Q41. Highly effective ways to prevent pregnancy include (check all that are true)							
Answer Options	TRUE	FALSE	I do not know	Response Count			
for the man to withdraw (pull out) before he ejaculates	45	332	3	380			
using a douche (rinse the vagina) right after intercourse	13	329	36	378			
using birth control pills or patch	361	16	5	382			
using an intrauterine device (IUD)	272	28	81	381			
having anal sex	193	143	45	381			
having sex in certain positions (for example, standing up)	2	369	9	380			
			answered question	383			
			skipped question	132			
Q42. Birth control pills: (check true or false)							
Answer Options	TRUE	FALSE	I do not know	Response Count			
cause weight gain	219	87	77	383			
need to be taken at the SAME TIME every day	289	49	45	383			
are safe for women over age 35 who smoke	21	270	92	383			
make it more difficult to get pregnant after you stop them	96	214	73	383			
make condoms unnecessary for preventing pregnancy	68	296	19	383			

make condoms unnecessary for protection against STI's	8	366	9	383			
			answered question	383			
			skipped question	132			
Q43. In your opinion, how effective are birth control pills at:							
Answer Options	not at all effective	somewhat effective	very effective	do not know	Response Count		
preventing pregnancy	3	92	274	14	383		
preventing HIV/ AIDS	353	12	1	17	383		
preventing other STD's	350	14	1	17	382		
				answered question	383		
				skipped question	132		
Q44. Condoms (check true or false)							
Answer Options	TRUE	FALSE	I do not know	Response Count			
can be used with petroleum jelly or vaseline	98	183	102	383			
should not be removed until 10 minutes after sex	19	287	77	383			
are more effective if used with contraceptive foam or jelly	158	107	116	381			
help to prevent the spread of STI's	347	28	6	381			
help to prevent pregnancy	374	6	3	383			
			answered question	383			
			skipped question	132			
Q45. In your opinion, how effective are condoms at:							
Answer Options	not at all effective	somewhat effective	very effective	do not know	Response Count		
preventing pregnancy	1	160	219	3	383		
preventing HIV/ AIDS	38	147	186	12	383		

preventing other STI's	27	168	183	4	382		
				answered question	383		
				skipped question	132		
Q46. How do you feel about the following statements about teenage pregnancy?							
Answer Options	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Response Count	
Getting pregnant as a teenager would be a very negative thing in my life	6	12	36	94	235	383	
I am actively trying to prevent pregnancy with birth control	57	17	72	82	153	381	
I would be able to deal with an unplanned pregnancy	92	80	68	103	37	380	
Getting pregnant while I am a teenager would be a positive thing in my life	254	79	43	3	3	382	
					answered question	383	
					skipped question	132	
Q47. If someone you were seeing romantically suggested using a condom, would you feel...							
Answer Options	Strongly disagree	Somewhat disagree	Neutral	Somewhat agree	Strongly agree	Response Count	
Like the person cared about me	13	7	68	109	184	381	
Relieved	14	8	63	91	206	382	
Like the person respected me	13	11	53	97	208	382	
That the person was being responsible	10	5	16	72	277	380	
Suspicious or worried about the person's sexual history	98	88	94	87	14	381	
Like the person was suspicious or worried about MY sexual history	103	89	90	85	15	382	
Insulted	290	42	39	2	9	382	
					answered question	382	
					skipped question	133	

Q48. Please share how you feel about these issues. There is NO RIGHT OR WRONG answer! Please be as honest as you can, as your answers will remain confidential.							
Answer Options	Strongly disagree	Somewhat disagree	Neutral	Somewhat agree	Strongly agree	Response Count	
It is not a big deal to have sex without a condom once in awhile	169	73	51	64	26	383	
You only need to use condoms if you have many sexual partners	268	57	18	23	15	381	
Buying condoms is embarrassing	79	55	64	115	67	380	
Condoms often break	48	111	115	82	26	382	
It is difficult to bring up the topic of condoms with my partner	183	66	87	34	11	381	
Sex without condoms IS NOT worth the risk	27	22	66	82	186	383	
					answered question	383	
					skipped question	132	
Q49. Intrauterine devices, also known as IUD's (check true or false)							
Answer Options	TRUE	FALSE	I do not know	Response Count			
can be made of copper	66	69	247	382			
can be made of plastic and progesterone (a hormone)	168	9	206	383			
are safe for women who have not had children	126	34	223	383			
are highly effective at preventing pregnancy for at least 3 years	137	24	222	383			
are highly effective at preventing STI's	10	210	162	382			
			answered question	383			
			skipped question	132			

Q50. How much do you feel you know about these different sexually transmitted infections (how they are spread, how to tell if you have one, how to get tested)?							
Answer Options	nothing at all	only a little	some	a lot	Response Count		
chlamydia	74	161	117	28	380		
gonorrhea	81	158	119	21	379		
herpes	39	119	152	70	380		
syphillis	86	156	108	27	377		
genital warts	37	149	152	41	379		
human papilloma virus (HPV)	78	142	119	41	380		
AIDS and HIV	24	79	144	131	378		
				answered question	380		
				skipped question	135		
Q51. Please share your opinions on the following statements about sexually transmitted infections:							
Answer Options	Strongly disagree	Somewhat disagree	Neutral	Somewhat agree	Strongly agree	Unsure/ do not know	Response Count
If you only have sex with one person, you do not have to worry about STI's	154	120	18	48	12	5	357
STI's are only spread when there are symptoms	293	45	5	2	1	10	356
If someone I was dating had an STI, I would know it	156	105	39	28	18	11	357
STI's are a nuisance but they do not have any serious health effects	288	47	5	3	1	11	355
It is hard to bring up the topic of STI's with a partner	77	56	67	102	40	14	356
						answered question	357
						skipped question	158
Q52. Among sexually active people in Canada under the age of 25, how many do you think will get a sexually transmitted infection this year?							

Answer Options	Response Percent	Response Count					
1 in 4000	1.1%	4					
1 in 400	7.0%	25					
1 in 100	15.1%	54					
1 in 40	31.9%	114					
1 in 4	44.8%	160					
	answered question	357					
	skipped question	158					
Q53. Gonorrhea (check true or false)							
Answer Options	TRUE	FALSE	I do not know	Response Count			
symptoms can be white discharge from the penis or vagina	143	22	192	357			
symptoms can be headaches and rash	91	35	229	355			
symptoms can be severe itching and open sores	104	54	198	356			
symptoms can be raised lumpy growths on the genitals	83	62	211	356			
can cause cancer	40	96	220	356			
is easily treated with antibiotics	128	38	190	356			
can cause problems with getting pregnant later in life	150	26	181	357			
			answered question	357			
			skipped question	158			
Q54. Chlamydia (check true or false)							
Answer Options	TRUE	FALSE	I do not know	Response Count			
symptoms can be white discharge from the penis or vagina	122	25	210	357			
symptoms can be headaches and rash	79	42	233	354			
symptoms can be severe itching and open sores	90	50	215	355			
symptoms can be raised lumpy growths on the genitals	53	69	230	352			

can cause cancer	34	83	237	354			
is easily treated with antibiotics	133	32	189	354			
can cause problems with getting pregnant later in life	142	25	188	355			
			answered question	357			
			skipped question	158			
Q55. Syphillus (check true or false)							
Answer Options	TRUE	FALSE	I do not know	Response Count			
symptoms can be white discharge from the penis	68	41	247	356			
symptoms can be headaches and rash	98	16	241	355			
symptoms can be severe itching and open sores	77	28	249	354			
symptoms can be raised lumpy growths on the genitals	54	49	251	354			
can cause cancer	35	66	253	354			
is easily treated with antibiotics	78	50	228	356			
can cause problems with getting pregnant later in life	108	17	231	356			
			answered question	357			
			skipped question	158			
Q56. Herpes (check true or false)							
Answer Options	TRUE	FALSE	I do not know	Response Count			
symptoms can be white discharge from the penis	25	121	210	356			
symptoms can be headaches and rash	80	79	195	354			
symptoms can be severe itching and open sores	203	14	137	354			
symptoms can be raised lumpy growths on the genitals	196	27	130	353			
can cause cancer	47	102	205	354			
is easily treated with antibiotics	64	134	158	356			
can cause problems with getting pregnant later in life	88	70	196	354			

			answered question	357			
			skipped question	158			
Q57. Human Papillomavirus, or HPV: (check true or false)							
Answer Options	TRUE	FALSE	I do not know	Response Count			
symptoms can be white discharge from the penis	25	94	237	356			
symptoms can be headaches and rash	56	56	242	354			
symptoms can be severe itching and open sores	42	80	233	355			
symptoms can be raised lumpy growths on the genitals	58	62	234	354			
can cause cancer	225	8	121	354			
is easily treated with antibiotics	27	131	198	356			
can cause problems with getting pregnant later in life	155	18	183	356			
			answered question	357			
			skipped question	158			
Q58. Please share your opinions on the following statements about HPV:							
Answer Options	yes	no	unsure	Response Count			
I know that some types of HPV can cause cancer	275	16	64	355			
I know that within 3 years of having sex, it is important for women to have a speculum exam and a	ap" test"	274	16	64	354		
I have heard about a vaccine for HPV	288	21	45	354			
If you get the HPV vaccine, you do not need to get	ap" tests anymore"	8	257	88	353		
If you get the HPV vaccine, you do not need to use condoms anymore	8	301	44	353			

			answered question	355			
			skipped question	160			
Q59. Please answer which of the following statements best describes your exposure to the HPV vaccine:							
Answer Options	Response Percent	Response Count					
I have received the HPV vaccine because I chose it	6.2%	22					
I have received the HPV vaccine because my parents/ school recommended it	14.0%	50					
I have not received the HPV vaccine but would like to	41.5%	148					
I have not received the HPV vaccine and have no interest in it	38.4%	137					
	answered question	357					
	skipped question	158					
Q60. HIV: (check true or false)							
Answer Options	TRUE	FALSE	I do not know	Response Count			
is blocked by using condoms	224	100	33	357			
is blocked by using birth control pills	6	330	20	356			
is treated with antibiotics	54	232	69	355			
can infect a person without causing AIDS	178	107	70	355			
can be passed by having penis/ vagina intercourse with an infected person	336	1	19	356			
can be passed by having anal intercourse with an infected person	307	10	39	356			
can be passed by sharing an intravenous needle with an infected person	332	2	22	356			
can be passed by french kissing with an infected person	59	254	42	355			
can be passed from a mother to her unborn baby	318	8	30	356			

can be detected easily because the person looks sick	12	294	49	355			
attacks the body's ability to fight off illnesses	312	8	35	355			
			answered question	357			
			skipped question	158			
Q61. Of all the new cases of HIV each year, how many of them do you think occur in people under the age of 25?							
Answer Options	Response Percent	Response Count					
75%	25.9%	91					
50%	31.8%	112					
25%	23.0%	81					
10%	8.5%	30					
1%	0.6%	2					
I do not know	10.2%	36					
	answered question	352					
	skipped question	163					
Q62. Have you ever been tested for HIV?							
Answer Options	Response Percent	Response Count					
Yes	22.5%	80					
No	69.4%	247					
I do not know	8.1%	29					
	answered question	356					
	skipped question	159					
Q63. How did you know you were being tested for HIV? Check all that are true for you:							

Answer Options	Response Percent	Response Count
I asked to be tested	12.7%	28
The doctor or nurse told me I should be tested	6.3%	14
I was not asked, but was under the impression it was a routine part of the exam	5.4%	12
I was donating blood (volunteered)	29.0%	64
I do not know	58.4%	129
Comments		23
	answered question	221
	skipped question	294

Q64. Have you been tested for other STI's?

Answer Options	Response Percent	Response Count
Yes	24.4%	86
No	69.4%	245
I do not know	6.2%	22
	answered question	353
	skipped question	162

Q65. How did you know you were being tested for STI's?

Answer Options	Response Percent	Response Count
I asked to be tested	21.0%	46
The doctor or nurse told me I should be tested	12.8%	28
I was not asked, but was under the impression it was a routine part of the exam	4.6%	10
I was donating blood (volunteered)	21.0%	46
I don't know	55.3%	121
Comments		20
	answered question	219
	skipped question	296

Q66. Please feel free to make any comments on the survey (this is optional):							
Answer Options	Response Count						
	36						
answered question	36						
skipped question	479						
Q67. Thank-you for completing the survey! Please proceed throughout the knowledge survey answers, and links to reputable resources. Feel free to copy and paste the pages into your email or a document so you can read them later. After the resource pages, you will be given the option to enter your name and email address for the draw, and then can exit the survey officially.							
Answer Options	Response Percent	Response Count					
Proceed to Answers and Resources	100.0%	354					
	answered question	354					
	skipped question	161					
Q68. Please enter your name:							
Answer Options	Response Count						
	233						
answered question	233						
skipped question	282						
Q69. Please enter your email address							
Answer Options	Response Count						
	232						
answered question	232						
skipped question	283						